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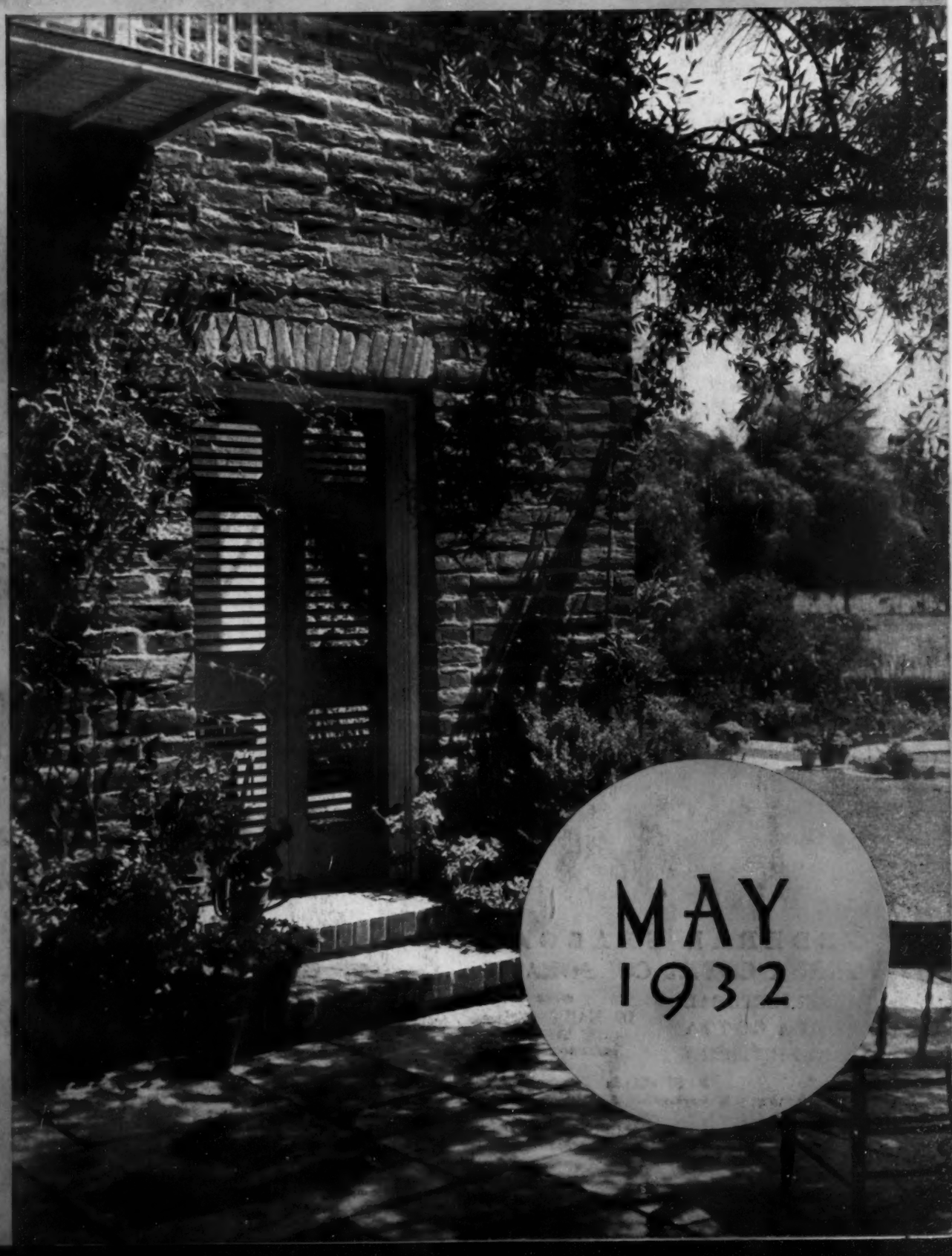
MAY 1 2 1932

THE ARCHITECTURAL RECORD



MAY
1932

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THE ARCHITECTURAL RECORD

VOL. 71 NO. 5 MAY, 1932

F.W. DODGE CORPORATION

Published monthly by

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Roland E. Coate, Architect
Photograph by Haight

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Gehron and Ross, Architects

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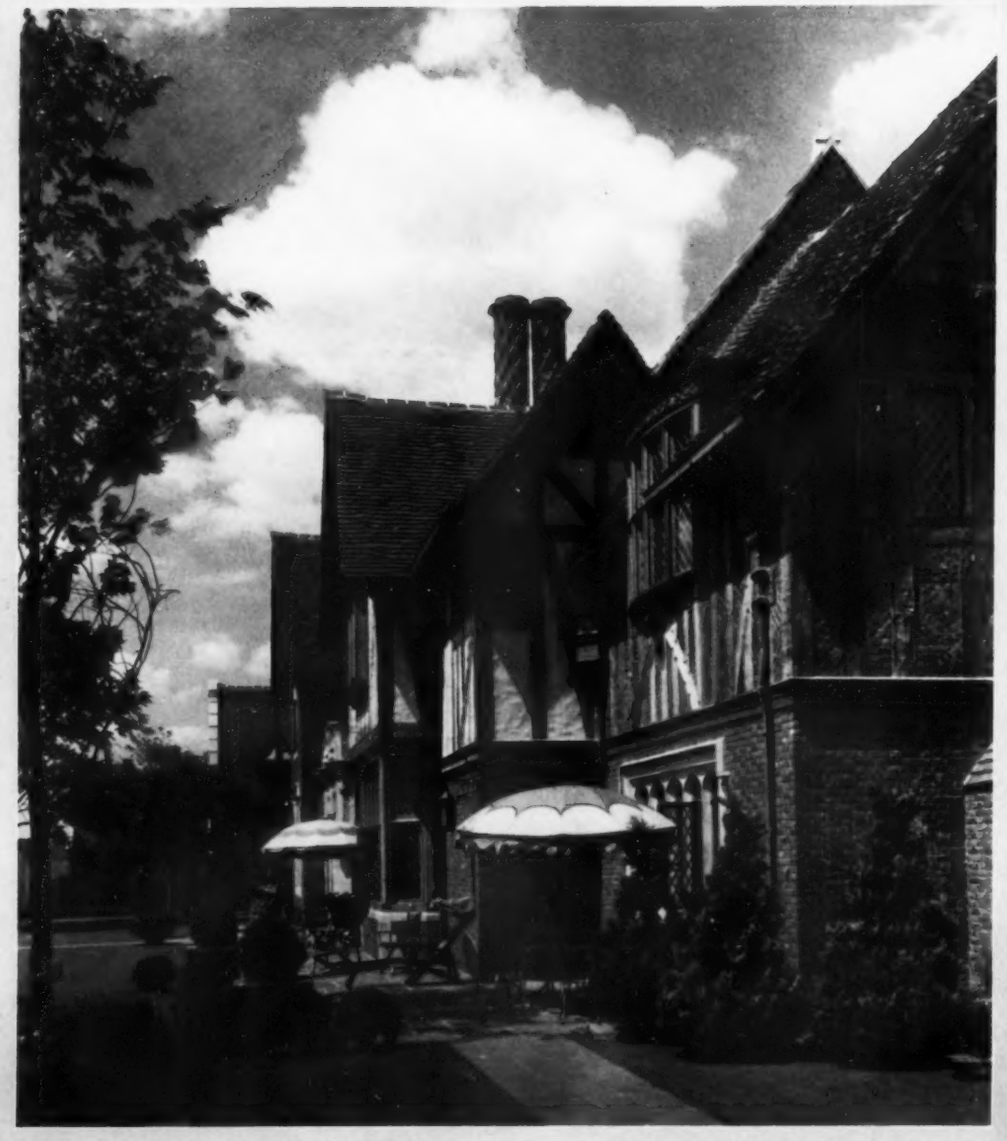
INTERNATIONAL CASEMENTS



RESIDENCE, MT. HEALTHY, OHIO — Dwight James Baum, *Architect*

INTERNATIONAL CASEMENTS—both Custom-built and Cotswold—now are available equipped with screens. Special hardware permits the casement to be opened and closed without disturbing the screen which, however, may be detached instantly to operate awnings or clean the glass.

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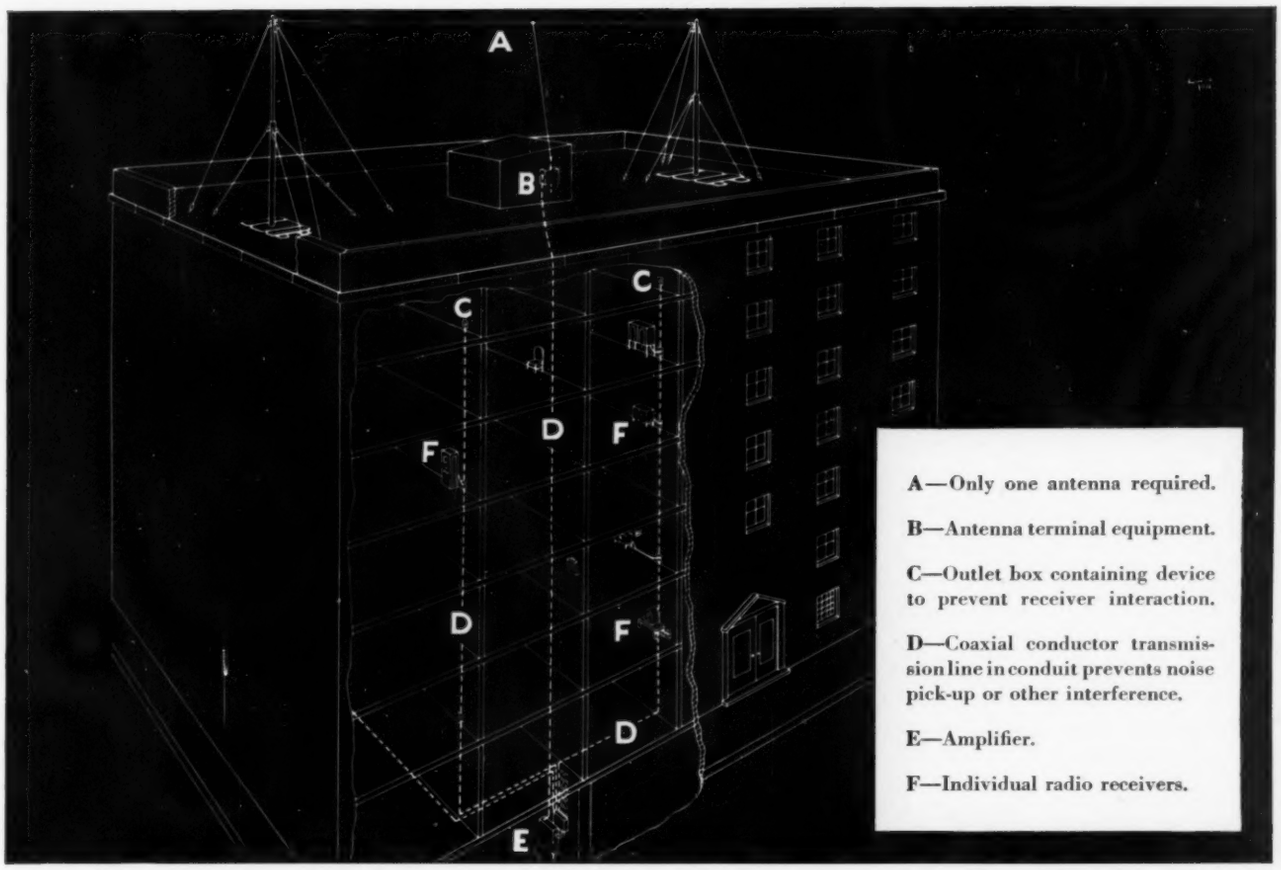

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THE ARCHITECT'S LIBRARY

SOUTHERN ARCHITECTURE ILLUSTRATED. Foreword by Lewis E. Crook, Jr. Introduction by Dwight James Baum. Published by Harman Publishing Co., Atlanta, Ga. 272 pages of plates. Price $5.

A large number of houses erected in the southern states during the past few years are illustrated in this volume. The plates are large, well selected and generally well reproduced. Plans are included. The introduction by Mr. Baum criticises appreciatively the houses illustrated.

THE PROMOTION OF COMMERCIAL BUILDINGS. By Charles H. Lench. Published by Architectural Economics Press, New York. 253 pages. Introductory price $6.50.

In the spring of 1931 the department of architecture of Columbia University announced a new lecture course entitled "The Architect's Relation to the Promoting and Financing of Income-Producing Buildings." Lectures were given by Mr. Lench, a practicing architect, to a class consisting of architects, engineers, draftsmen, builders, brokers and investors in real estate. These lectures have now been gathered together in a single volume which makes a promising entry into a heretofore neglected field of publication.

The book has two parts. The first considers the various personalities—promoters, bankers, builders, real estate operators, realtors, attorneys, renting agents, building managers, mortgage brokers, appraisers, land surveyors, surety companies, and owners—with whom an architect must cooperate in the promotion of commercial buildings.

Part two comprises analyses of financial statements, or set-ups, for various types of commercial building operations. Case studies, drawn from Mr. Lench's own professional experience, are used to illustrate prcedure on such building types as apartment houses, cooperatives, apartment hotels, club and commercial hotels, office buildings, lofts, garages, warehouses and suburban housing developments.

MEN AND BUILDINGS. By John Gloag. Published by Country Life, Ltd., and Charles Scribner's Sons. 246 pages. Price 8s. 6d.

This book can be classed as a descriptive narrative of the art of architecture rather than a technical book or a textbook on architectural development. It attempts to give the layman an unbiased account of the growth of the art of building. The author discusses present-day problems and achievements, and predicts possible trends. He supplements his story with a list of books by other authors who treat this subject in a more formal or technical manner.

From "Southern Architecture"

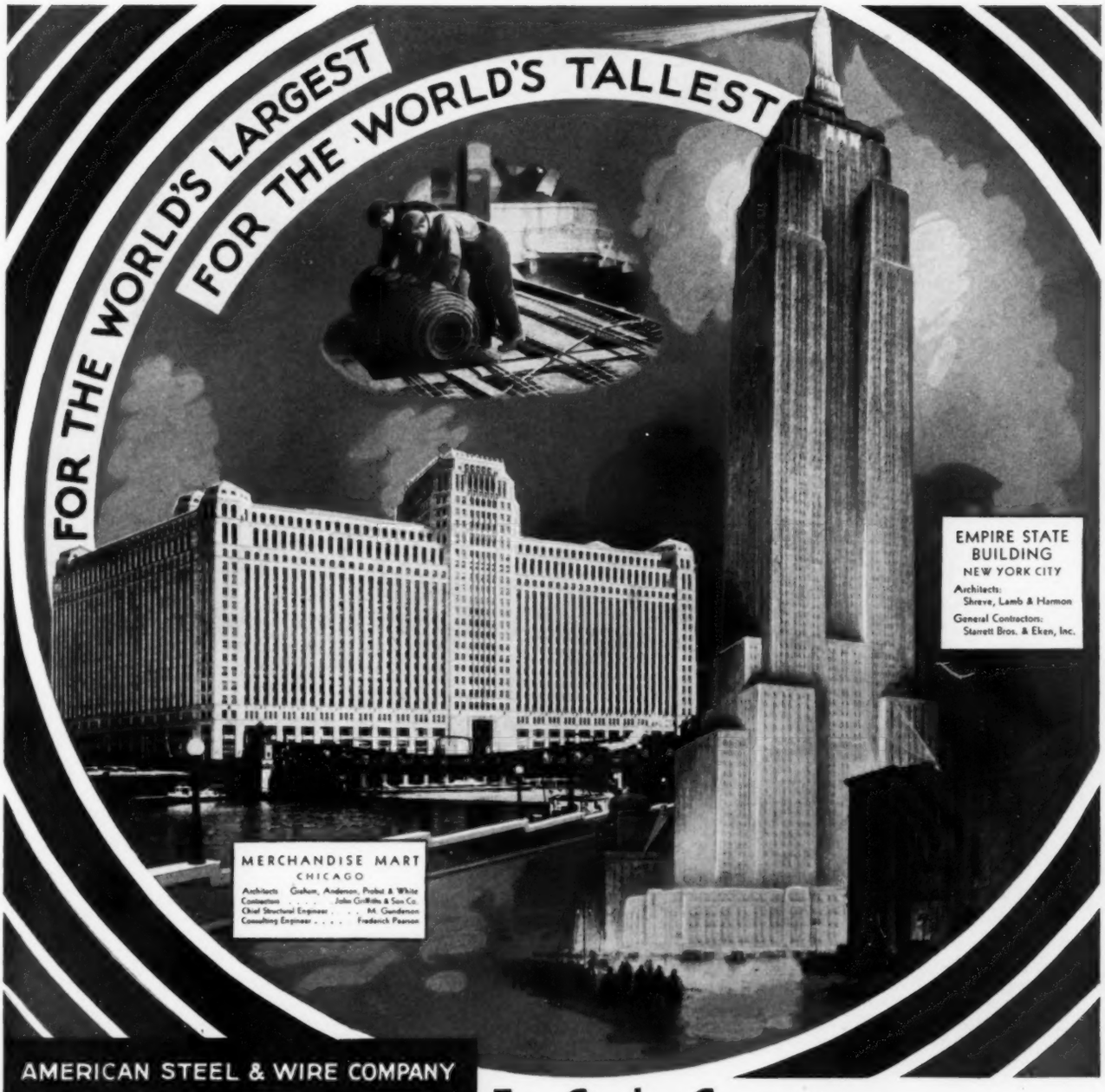
HOUSE OF M. P. BURROUGHS, ST. LOUIS
TRUEBLOOD AND GRAF, ARCHITECTS

ENGLISH WROUGHT IRONWORK, MEDIEVAL AND EARLY RENAISSANCE, ENGLISH BRICKWORK DETAILS, 1450-1750. By Tunstall Small and Christopher Woodbridge. Published by William Helburn, Inc., New York. Price $4 each.

These are the fifth and sixth volumes in the series of portfolios of loose plates showing full-size drawings of architecural details chosen from authentic examples of their respective periods in England. The series covers moldings, turned woodwork, wrought ironwork and brickwork, and the periods range from the middle of the fifteenth to the early nineteenth centuries. Each volume contains twenty plates, 12½ by 10 inches, printed on stiff board paper, and the details shown full size are given in their relative positions and applications in the accompanying small-scale key drawings.

Samples of wrought ironwork taken from all parts of England include hinges, railings, screens and grilles, handles and latches, escutcheons, knockers and casement fasteners.

Details of molded brickwork include sections of cornices, frieze molds, architraves, archivolts, imposts, plinth and label molds, caps and bases, mullions and other brickwork contours.


FOR THE WORLD'S LARGEST
FOR THE WORLD'S TALLEST
EMPIRE STATE BUILDING
NEW YORK CITY
Architects: Shreve, Lamb & Harmon
General Contractors: Starrett Bros. & Eken, Inc.
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CHICAGO
Architects Graham, Anderson, Probst & White
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1831 MORE THAN 100 YEARS OF PROGRESS IN WIRE MAKING 1932

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Photograph by Walter Hege

VIEW OF THE ACROPOLIS, SHOWING THE PARTHENON (ABOVE) AND THE ODEUM (BELOW)

THE ACROPOLIS. Photographed by Walter Hege. Described by Gerhart Rodenwaldt. Published by E. Weyhe, New York. 61 pages of text, 104 plates. Price $9.

This book presents a collection of photographs of the buildings on the Acropolis. The excellent quality of the prints bear evidence of the artistic technique of the photographer. The book jacket explains that Mr. Hege was given the task of presenting the Acropolis in about 100 photographs. For the completion of this work he was allowed a year, during which a thousand photographs were prepared with painstaking detail as to proper exposure and time. The engraver's and printer's reproductions do full justice to the quality of the hundred prints finally selected. Many detailed views of the sculpture in the Panathenaic frieze are included.

RECENT TRENDS IN AMERICAN HOUSING. By Edith Elmer Wood, Ph.D. Published by the Macmillan Company, New York. 317 pages. 13 photographic plates. Price $3.

This is a reference book of considerable usefulness on the now important subject of housing. Its concern is sociological. Dr. Wood investigates the status, in the present and the immediate past, of home ownership, the effect on housing of the operation of commercial "supply and demand," the relation between rent or purchase price and family income (with corrections of a good many current false assumptions in calculating what the family income actually is), and the possibility of more adequate housing in the future. She tells the story of war housing in the United States, which set standards never since equalled here, the effort having succumbed during the boom. There are chapters devoted to devices such as rent restriction, tax exemption, tenement and housing codes, zoning, regional planning. There is a brief account of garden cities in England, and such enterprises here as Mariemont and Radburn. In conjunction with one another are placed the various housing enterprises that have sought to provide living quarters at a level of income too low to be reached commercially: cooperatives consisting mainly of trade unions groups such as the Amalgamated Clothing Workers in New York; then operations bringing limited returns, such as the work of the Model Homes Company of Cincinnati and the City Housing Corporation, or such as the Metropolitan Apartments in Chicago, the Rockefeller houses, and the current New Jersey enterprise of the Prudential Life. Then there are the projects of the public authorities. A chapter deals with slum clearance.

With two-thirds of the population provided for with housing only at second, third, or fifth hand, the author is confident that major social evils can be traced to the lack of decent living accommodations. New York slums are the worst in the civilized world.

The pessimistic tone is that of a humanitarian who sees no measurable relief to be obtained without extensive government aid. Since the book was written, the possibility of industrial participation in a field hitherto occupied by philanthropy has seemed considerably to increase. A good deal is to be expected, for example, rom technological advances that the book completely ignores. Nevertheless, as a survey of the present situation, the volume is unequalled. DOUGLAS HASKELL.

AMERICAN LIFE IN ARCHITECTURE. By Philip N. Youtz. Published by American Library Association, Chicago. 47 pages. Prices: cloth, 50¢; paper, 35¢.

This book, which is a reading course and study outline on American architecture, is No. 55 in the "Reading with a Purpose" series. It is sponsored by the Committee on Education of the American Institute of Architects.

Architecture is considered as an expression of society and the social functions of buildings are stressed. Brief summaries of the various architectural periods are given together with a chart of American history in architecture. A recommended bibliography is included.

Pennvernon Windows
MIRROR NATURE *in its* TRUE COLORS

HALF the charm of a room consists in the views which can be seen from its windows. But if these views are to be charming, they must be brought into the home clearly, in fine detail, in all their natural colors.

Pennvernon Window Glass will transmit the beauties of Nature in just that way. None of Nature's own bright coloring is lost, or changed, or dimmed—because Pennvernon is so free from color itself that it mirrors Nature's hues as they really are.

Furthermore, Pennvernon has unusual flatness and transparency which give it a life-like clearness of vision. Imperfections and distortions are conspicuously absent in this fine glass.

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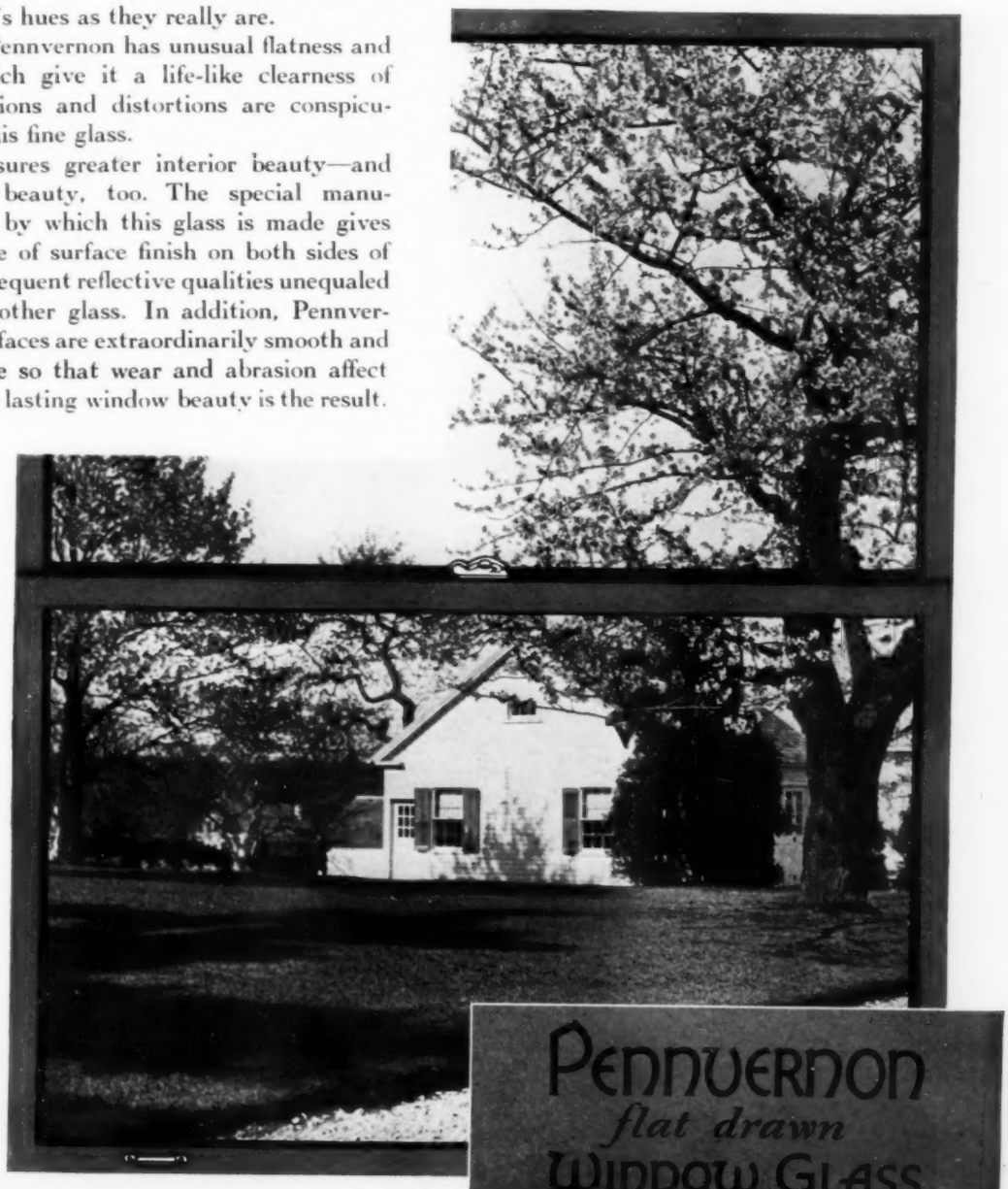


PENNVERNON
flat drawn
WINDOW GLASS

FEATURES IN THE JUNE ISSUE

Trowbridge

AUDITORIUM IN THE CINEMA ART THEATER, CHICAGO
ARMSTRONG, FURST AND TILTON, ARCHITECTS

THEATRES — The Technical News and Research article will take up problems involved in the design, construction and equipment of small theatres. Lighting and acoustical requirements of motion picture theatres will be analyzed; likewise seating arrangements as determined by the screen location.

HOUSES — The Portfolio will feature inexpensive designs suitable for suburban communities. Houses illustrated include recent work by Thomas and Baker, Delano and Aldrich, Dwight James Baum, Roland E. Coate, and other architects.

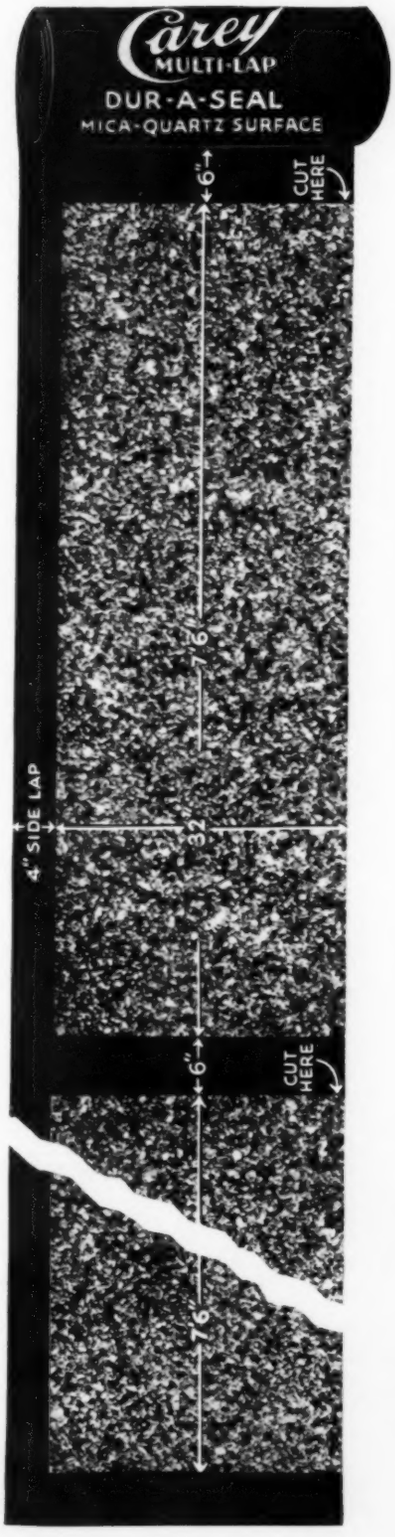
COURT HOUSE — The Delaware County Court House at Media, Pennsylvania, by Clarence W. Brazer, architect, is exemplary of a successful handling of Colonial detail.

MUSIC SCHOOL — The plan of the new Juilliard School, by Shreve, Lamb and Harmon, architects, is the result of a long investigation to determine the requisite elements for the ideal metropolitan music center housed in a single structure.

Fischer

JUILLIARD SCHOOL OF MUSIC, NEW YORK CITY
SHREVE LAMB AND HARMON, ARCHITECTS

The New Superior Surface for Built-Up Roofs



At the left is a photographic reproduction of Carey Dur-a-Seal—the new surface for built-up roofs. When applied, it is cut as indicated, forming sheets 8 ft. long by 3 ft. wide. Each sheet has one uncoated 6″ end lap and one uncoated 4″ side lap. These selvage laps are joined to adjacent sheets with moppings of hot asphalt, and when thus united they form a jointless, weather-resisting surface.

The Mica Quartz surface of Carey Dur-a-Seal is not affected by acids, alkalies or exposure. It is equally as durable as slag or gravel surfaced roofs when applied on decks with an incline ranging from ¾″ to 3″ in 12. It possesses all the advantages of a smooth top roof plus the safeguarding value of the Mica Quartz surfacing which protects the water-proofing elements in the roof from the searing action of the sunlight. In comparison to slag or gravel, Mica Quartz surfacing is much more dense, weighs far less and does not separate from the surface and clog roof drains.

Upon request, we will be glad to supply any architectural office with complete specifications covering built-up roofs surfaced with Carey Dur-a-Seal.

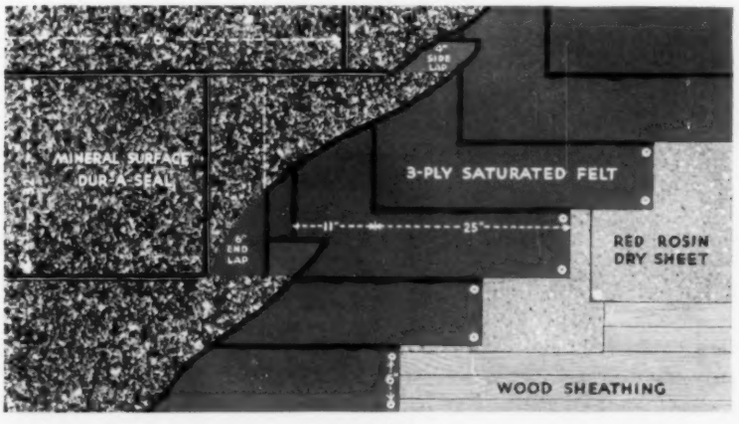
THE PHILIP CAREY COMPANY

Lockland, Cincinnati, Ohio

Branches in Principal Cities

See Carey Section—Sweet's 1932 Architectural Catalogs

The drawing below shows the application of Carey Dur-a-Seal. Detail indicates the construction of Carey Master Built-Up Roof Specification No. 5.



BUILT-UP ROOFS
ASPHALT PRODUCTS
ELASTITE EXPANSION JOINT
WATERPROOFINGS
ROOF PAINTS

Carey PRODUCTS

HEAT INSULATIONS
ASBESTOS MATERIALS
CORRUGATED ASBESTOS SIDING
ASFALTSLATE SHINGLES
ROLL ROOFINGS

EXHIBITIONS AND EVENTS

May 24-25	Symposium on modern trend in residence construction. Conference sponsored by American Institute of Steel Construction; to be held in auditorium of Engineering Societies Building, 29 West 39th Street, New York City.
May 26	Second annual meeting of the Porcelain Enamel Institute in Cleveland. Talks on architecture are scheduled. A new porcelain enamel on metal house will be open for inspection.
Until June 1	Exhibition of advertising art at the Art Center, New York City.
June 20-24	Annual meeting, in Atlantic City, of the American Society for Testing Materials.
June 25-August 19	Modern architecture tour of Europe, conducted by Prof. Talbot F. Hamlin of Columbia University. Address The American Institute of Educational Travel, 587 Fifth Avenue, New York City.
July 30-August 14	Exhibition of art at the Los Angeles County Museum in conjunction with the American Olympiad competition of sports buildings by architects of the nations invited to the Olympic Games. Address Secretary, American Olympic Committee, 233 Broadway, New York City.
October	International Congress for Modern Architecture at Moscow, U. S. S. R. Program: "The Functional City."

COMPETITIONS

May 7	Closing date for applications for architectural fellowship competition, University of Pennsylvania.
June 15	Closing date for entries for Douglas Fir Plywood Manufacturers design competition. Address C. H. Alden, professional advisor, Skinner Building, Seattle, Wash.

FORUM ON BUILDING CONSTRUCTION

The American Institute of Steel Construction is planning a symposium or forum on the modern trend in residence construction.

The building public at large is invited to a conference in New York City on May 24 and 25 for the purpose of exchanging the latest data and theories on residence construction. This conference will be held in the auditorium of the Engineering Societies Building, 29 West 39th Street.

NEW YORK BUILDING CONGRESS OFFICERS

The New York Building Congress held its eleventh annual meeting and election of officers April 22. Harris H. Murdock was re-elected to the presidency. Additional officers for the next year are: Vice-presidents: William Arthur Payne, John J. Collins, Glover Beardsley, Thomas S. Holden, Daniel T. Webster; treasurer, Benjamin D. Traitel; secretary, E. L. Strickland.

ARCHITECTURAL TRIP TO RUSSIA

Dr. C. Aronovici, town planner, and Isadore Rosenfield, architect, will lead a limited group of architects on a study trip to Russia this summer. The time of sailing will be either the end of June or the middle of August. Those interested will please communicate with Mr. Rosenfield at 56 W. 45th Street, New York

ANNOUNCEMENTS

Christopher J. King, Harry E. Turk and Albert Criz announce their association for the practice of architecture and interior decoration at 25 East Jackson Boulevard, Chicago.

Charles T. Aubin, for many years with the firm of Atlee B. and Robert M. Ayres, has opened an office for the practice of architecture in San Antonio, Texas.

Ernest R. Richards, architect, announces the opening of a studio office for the practice of architecture, at 2123 Summerdale Avenue, Chicago.

T. Walker Gaggin, First Trust and Deposit Building, Syracuse, New York, is continuing the practice of architecture under his own name, the firm of Gaggin and Gaggin, architects, having dissolved.

George D. Riddle, architect, has moved from 201 Pacific-Southwest Building to 2826 Cedar Avenue, Long Beach, California.

Howard D. Fiedler, architect, has withdrawn from the firm of William H. Brainerd Associates, architects, and has opened his own office at 89 Franklin Street, Boston.

Alexander B. Trowbridge, architect, has moved his office from the Shoreham Building to the Edmonds Building, 917 Fifteenth Street, N.W., Washington, D. C. The telephone number has not been changed.

Charles Howard Lloyd, architect, has moved his offices from the Telegraph Building to the second floor, 1011 N. Front Street, Harrisburg, Pennsylvania.

For his design of a monumental concert hall in a city park, William H. Scheick, instructor in the School of Architecture, University of Illinois, has been awarded the Le Brun Traveling Scholarship of $1,400 for 1932.

First prize of $100 in the filling station design competition, conducted by the Architects' Emergency Relief Committee of the New York Architectural League, was awarded to Arthur Martini. John J. Burton won second prize of $75. Third prize of $50 went to W. J. Ward, Jr. Thirty prizes of $25 each were also awarded.

The Architectural League of New York has exhibited a group of designs recently submitted by six American architects in the competition for a building and exhibit to be erected by Chrysler Corporation at the "Century of Progress" World's Fair in Chicago in 1933. This competition was won by Holabird and Root.

CERTIFIED BUILDING REGISTRY

Further progress in the direction of securing authoritative structural rating of buildings is being made by Certified Building Registry. This organization, incorporated in Illinois but with affiliations in many parts of the country, is a pioneer in the effort to do for buildings what Lloyd's Register of Shipping and the American Bureau of Shipping have done for shipping business, namely, to rate vessels upon their physical merits. Clyde A. Mann is director. N. Max Dunning, chairman of the Structural Service Department of the American Institute of Architects, represents the architectural profession on the board of governors of Certified Building Registry.

Bedded against masonry Alcoa Aluminum sills shut out moisture...*don't streak adjoining surfaces*

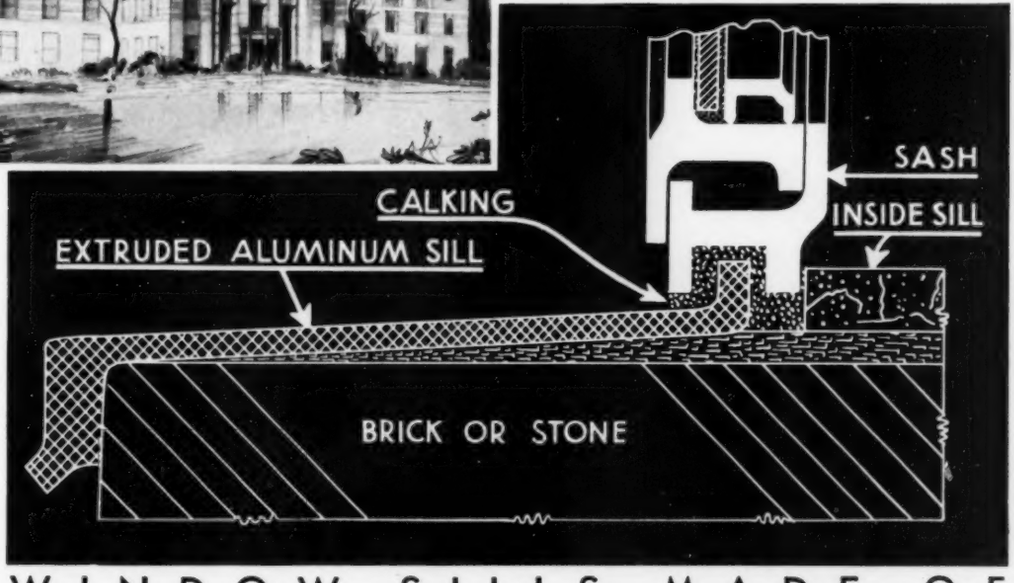
Protecting masonry and interior plastering from moisture seepage—harmonizing with modern color schemes—reducing weight and cost of setting! These important advantages of Alcoa Aluminum sills led to their use in St. Paul's beautiful new Bethesda Hospital.

The shape of Alcoa Aluminum sills provides extreme drip protection, ample calking space and weather stop. Yet they occupy no more space than the average masonry joint. Alcoa Aluminum sills may be fully bedded before window frames are set. They provide secure footing for window cleaners. Since they resist corrosion, they will not stain adjoining surfaces. And they may be left in their natural finish or painted as desired.

The price of cast or extruded Alcoa Aluminum sills with all their exclusive advantages is generally lower than that for sills of other materials. Standard sections are carried in stock for immediate shipment. Special sections may be fabricated from your own design. Complete information is contained in a file-size sheet A. I. A. File No. 15-J which we will be glad to send you on request. To obtain absolutely satisfactory architectural aluminum, specify Alcoa Aluminum and its alloys, made by ALUMINUM COMPANY *of* AMERICA; 2467 Oliver Building, PITTSBURGH, PENNSYLVANIA.

Bethesda Hospital, St. Paul, Minnesota. Architect: *Ellerbe & Company*, St. Paul. General Contractors: *Swenson & Hakanson*, St. Paul. 406 Alcoa Aluminum sills made of No. 43 alloy extruded sill section were used.

An additional use of Alcoa Aluminum was in the installation of Haslett Aluminum Linen Chutes by *Scribner-Libbey Roofing Company of St. Paul.*



WINDOW SILLS MADE OF

ALCOA ALUMINUM

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USS 18-8
USS 18-12
USS 25-12

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Ferritic
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USS 17
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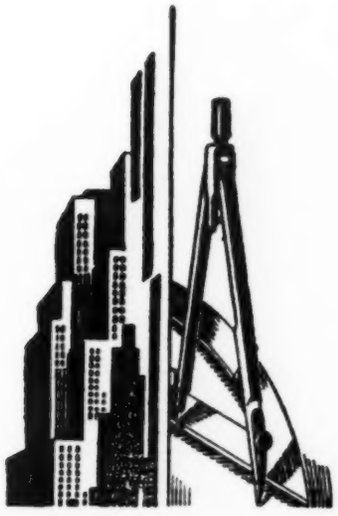
BARS • PLATES • SHAPES
SPECIAL SECTIONS
SEMI-FINISHED PRODUCTS



TO SPECIFY

IS TO PROMISE . .

There is an unwritten paragraph in every architect's specification that would say, if it were put into words:

■ *"My training enables me to create designs both practical and pleasing to the eye . . .*

■ *"My experience enables me to designate the various materials necessary to translate these designs into structures . . .*

■ *"My knowledge of these materials determines which, of two competitive products, will best accomplish the purpose I have in mind . . .*

■ *"and my whole professional standing rests upon the fact that the materials which I specify, used as my plans direct, will give my client the result which he is led to expect from my design."*

When the architect's design says "windows"... the glass with which they are glazed *must* say "quality". Libbey·Owens·Ford Quality Glass is clear and flat and lastingly brilliant. The resources and facilities of the Libbey·Owens·Ford Glass Company guarantee a dependable source of supply that furnishes *uniform* quality no matter what the volume. These two factors . . . *absolute* quality and *assured* quality . . . enable the architect to specify "L·O·F" with full confidence that it will fulfill the promise he makes by specifying it.

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• GRANITE

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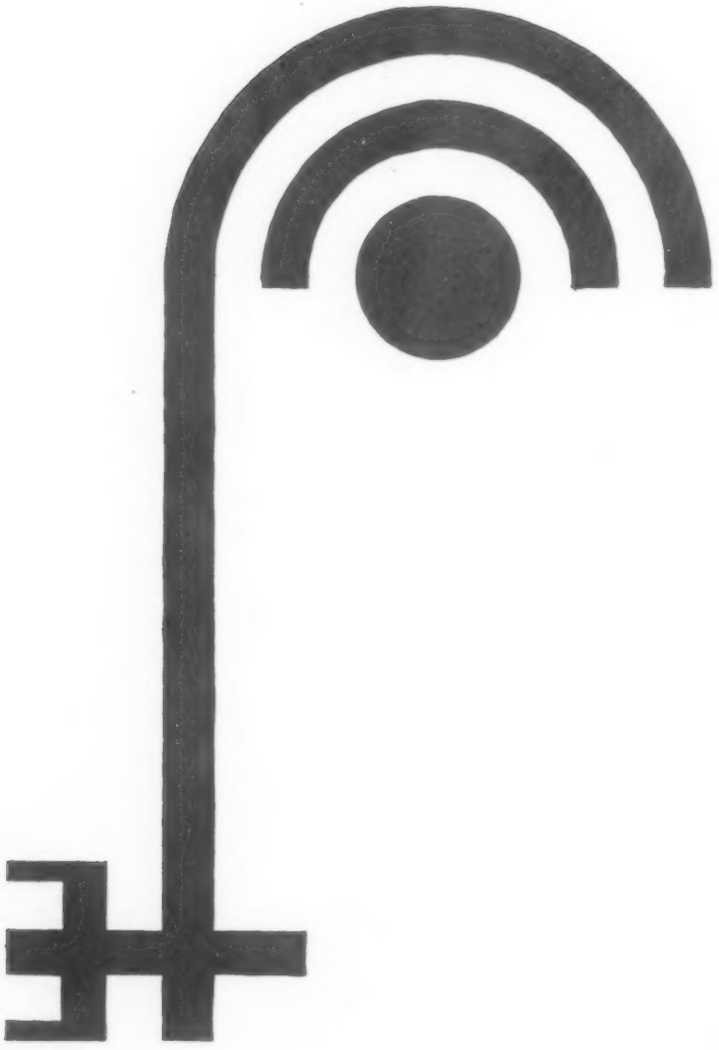
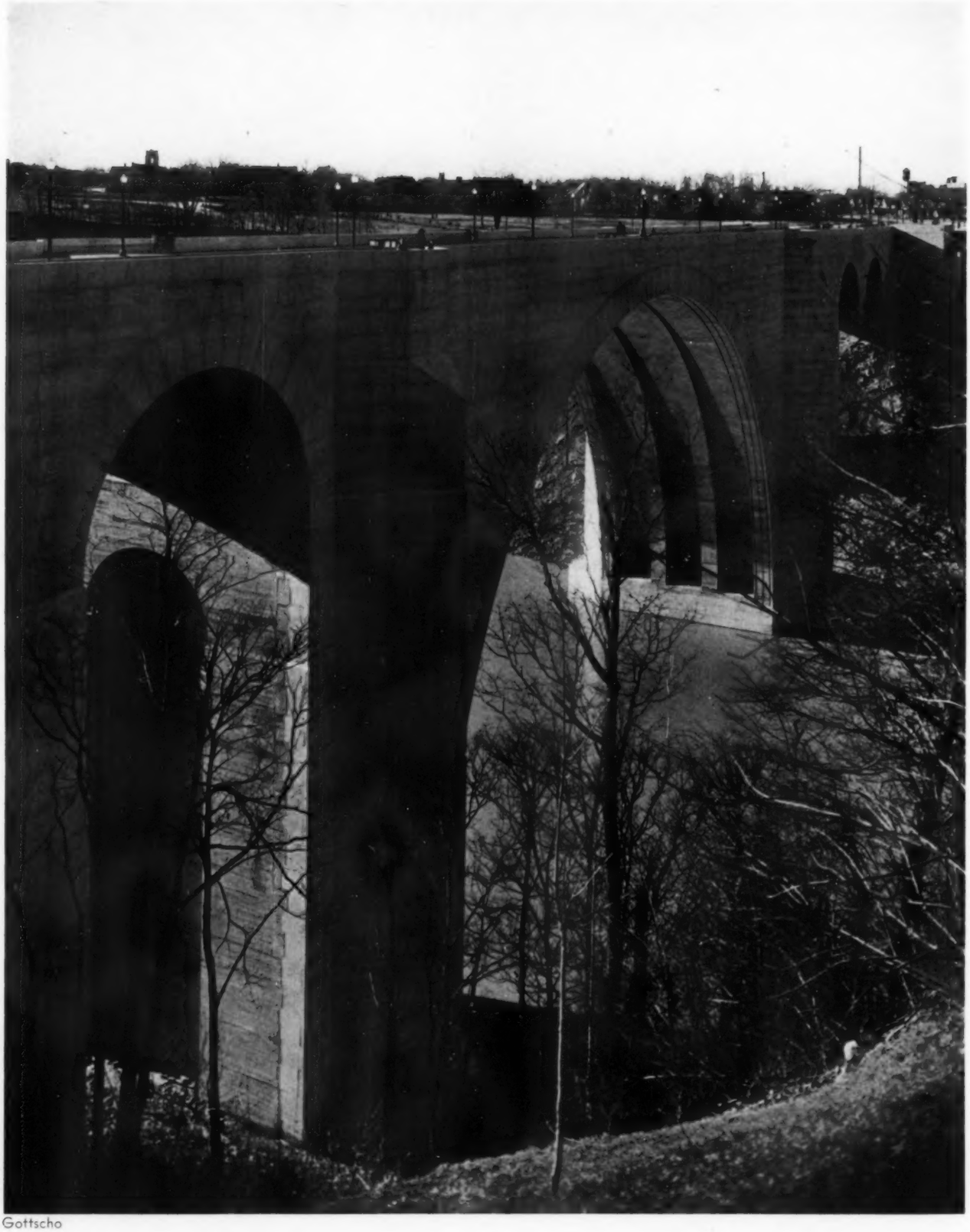


NEW QUARRY METHODS,
NEW MILL PROCESSES — CREATE A
NEW ECONOMIC GRANITE TECHNIC
USED IN THE NEW GENESEE SPAN AT
ROCHESTER, N.Y.

H·F·FLETCHER·CO·WEST CHELMSFORD·MASS·



Gottscho

VETERANS MEMORIAL BRIDGE AT ROCHESTER, NEW YORK
GEHRON AND ROSS, ARCHITECTS

THE ARCHITECTURAL RECORD MAY, 1932 VOL. 71—NO. 5

WHAT HAS HAPPENED TO ARCHITECTS?

By THOMAS S. HOLDEN, Vice President,
In Charge of Statistics and Research,
F. W. Dodge Corporation

Despite continuous and unprecedented contraction in building activity since 1928, the number of active architects has decreased only slightly. The number of firms dropping out of the active list has been very nearly offset by more than 2,000 new firms appearing in the field in each of the past three years. A thousand new architectural firms have appeared since January 1, 1932.

Many of these new firms have continued actively in business. Some of them have actually increased their volume of work in face of declining business in general.

With the shrinkage in building volume that has been witnessed in this country since the peak year 1928 the question naturally arises whether this has been accompanied by anything like a proportionate shrinkage in the number of architects in active practice. To answer this question an exhaustive analysis has been made of the cumulative daily records of architects' work kept by F. W. Dodge Corporation. The answer has been found to be in the negative. While the volume of building actually constructed from architects' plans in the 37 states east of the Rocky Mountains decreased 62 per cent between 1928 and 1931, the number of architectural firms and individuals who participated in this work decreased less than 11 per cent.

The accompanying table No. I shows a number of interesting and important facts about the history of architects and their business volume during the period of shrinkage of building volume. Certain other facts regarding the turnover in the profession during these years of readjustment will be brought out in other charts.

It will be seen from the first two columns of Table I that architects as a group have slightly more than held their own in the percentage of total dollar volume of building work they handle, their percentage decrease (62%) being two points less than the percentage drop of total building volume. The extreme shrinkage of building volume, coupled with the slight decrease in numbers of participating firms, results in the sizable decrease in average volume per firm, from $400,000 to $170,000, shown in the fourth column of the table.

Thus far the story of the change that has taken place is a fairly simple one. But as is frequently the case with simple statistical summaries, many important facts can be brought out by further analysis of the records. The figures in Table I show the net results of changes in personnel of the profession, but conceal the full extent of changes that have taken place. In the architectural profession, as in other professions and businesses, there is always a sizable annual turnover, old firms going out of business and new ones starting. It is of very considerable interest to examine the records of these past four years of, perhaps, the most drastic change that has taken place in the building industry for a generation or more, to see the total extent of change that has taken place in architectural personnel.

In checking architects' activity for the purposes of this analysis a firm credited with one or more projects on the Dodge records in a given year was checked as active that year, and those without any projects credited were checked as inactive that particular year.

It was found that, although the largest number of firms credited with active building projects in a given year was 9,087, there was a total of 15,964 firms credited with jobs at some time during the four years. There were just 3,863 firms active continuously through the four years, in the sense that projects were credited to them in the record in each of the years. The results of this check-up of the turnover in the profession may be summarized about as follows:

TABLE I

HOW THE SHRINKAGE OF BUILDING VOLUME HAS AFFECTED ARCHITECTS

(Contract statistics for 37 Eastern States—F. W. Dodge Corporation)

Year	Total Building*	Total Planned by Architects	Number of Active Firms	Average Business Volume per Office
1928	$5,217,942,800	$3,639,018,800	9,087	$400,000
1929	4,336,025,100	2,917,148,700	8,255	353,000
1930	2,907,303,700	2,108,804,900	8,240	256,000
1931	1,986,837,000	1,391,356,000	8,129	170,000
Per Cent drop 1928-1931	64%	62%	11%	57%

*Does not include public works and utilities, except the occasional jobs of this class which are planned by architects.

8,428 was the average number of offices active each year.

5,498, or 65 per cent of the total, was the average number active in a given year which continued active in the following year.

3,030, or 36 per cent of total active firms, represents the average number that dropped out each year.

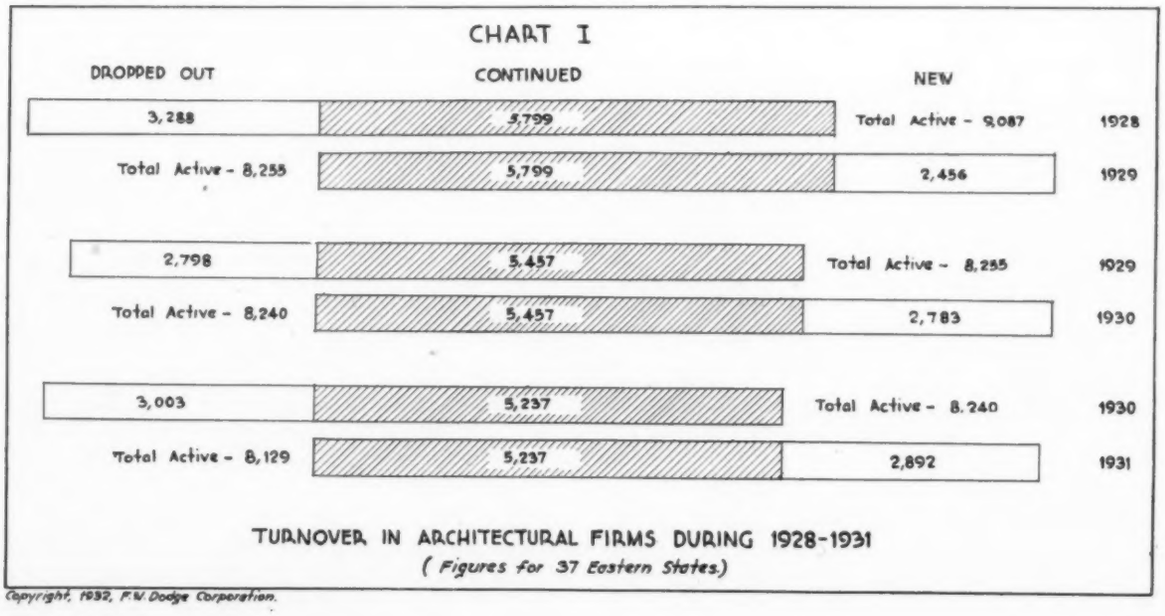
2,710, or 32 per cent of total active firms, represents the average number of new firms active each year.

3,863, or 46 per cent of total active firms, represents the number of firms continuously active through the four years.

The changes from year to year, as shown in Chart No. I, varied a little from the average figures quoted above. The chart compares the years, two at a time, showing the numbers of firms continuously active from one year to the next, the numbers which dropped out of the records, and the numbers of new ones appearing.

It should be explained that the firms counted as new for the purposes of this chart included some firms which, although inactive in the year immediately preceding the given year, had been active at some time previous.

Since the record was started in the year 1928 it is impossible to state how many of the 2,456 counted as new firms in 1929 had been active previous to 1928. But we can say, from checking the records, that of the 2,783 firms listed as new in 1930, 2,238 were names that had not appeared in either of the two previous years (and hence may be fairly rated as entirely new) while 545 firms had appeard in the records of the year 1928, though not in 1929. In other words, 545 of the firms active in 1928 and inactive in 1929, came back with active jobs in 1930. Again, among the 2,892 firms indicated on the chart as new in 1931, 2,162 had not appeared in the record before that year, while 730 firms had been active in 1928 or 1929 or both.



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The important point to note is that, in this period of drastic decline there have been more than 2,000 entirely new firms each year with actual work to their credit.

Even in spite of the extreme building depression experienced in the first quarter of 1932, 1,007 entirely new names of architects and firms have appeared in the records, credited with new projects or new plans.

It is entirely probable that many of these new architects represent individuals previously employed in large offices who have been forced to start practice on their own account by reason of slackened activity of their previous employers. But the interesting fact is that they have started in practice and have found architectural work to do.

The next question of interest is: How have the new firms fared in this period of shrinking opportunity?

Out of 2,456 firms rated as new in 1929, there were 462 which had actual jobs to their credit in both of the succeeding years. Out of a total of 2,783 new firms in 1930, of whom there were 2,238 entirely new ones, there were 682 which had actual jobs to their credit in 1931. There have been casualties among the new firms, but respectable percentages among them have persisted and have found adequate opportunities to stay in the running among the active firms.

The analysis of the list of 8,129 firms active in 1931 (those credited with actual projects) shown in Chart II, indicates the history of those active firms through the depression years and shows the relative numerical importance of the new firms who entered the field in 1931.

One of the obviously important lessons of this depression has been the vital necessity for recognition of large-scale change. Certainly this is true of the building field. It is highly significant that these fundamental changes, the results of which will be seen in future building programs, have been making for considerable turnover among practicing architects and in the midst of depression, opening up opportunities to new firms.

Naturally, the new firms do not usually get a volume of work comparable with that of the firms which have been continuously in business for an extended period. As an illustration of what may have been typical generally, certain figures for work done by architects active during 1931 in the state of Ohio are of interest. Firms continuously active from 1928 handled, in 1931, 77 per cent of that year's total volume of architects' business while the remaining 23 per cent was handled either by firms new in the field after 1928 or by firms who were not continuously active through the four-year period. Nine per cent of the total was credited to architects entirely new in the 1931 records, compared with only 6 per cent credited to entirely new firms in 1929 and again in 1930.

Some of the new firms have made appreciable

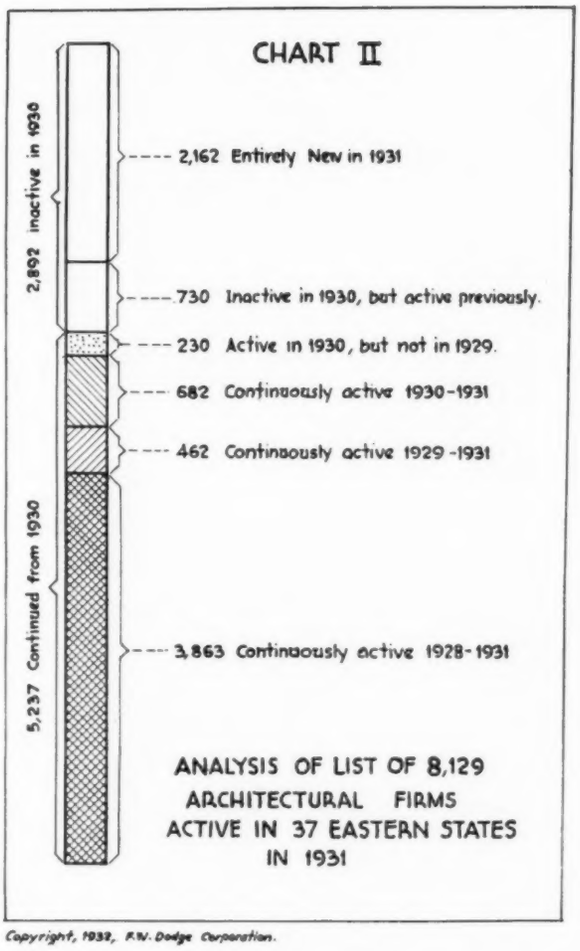
CHART II
2,892 inactive in 1930
2,162 Entirely New in 1931
730 Inactive in 1930, but active previously.
230 Active in 1930, but not in 1929.
682 Continuously active 1930-1931
462 Continuously active 1929-1931
5,237 Continued from 1930
3,863 Continuously active 1928-1931
ANALYSIS OF LIST OF 8,129
ARCHITECTURAL FIRMS
ACTIVE IN 37 EASTERN STATES
IN 1931

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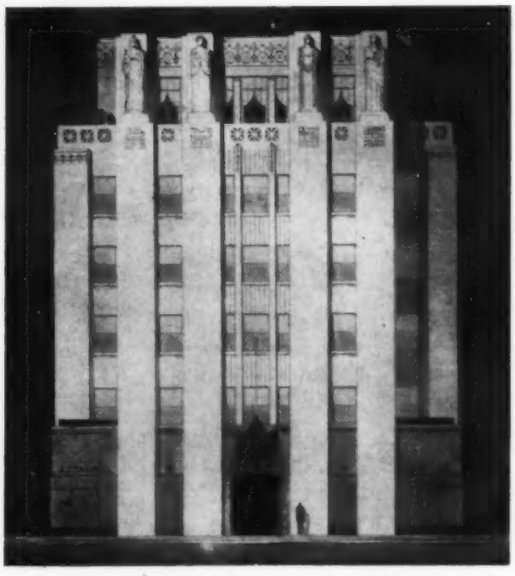
progress against the tide of business contraction. Out of 42 new firms in Ohio which started in 1929 and were continuously active through 1931, there were 21 who handled more business in 1930 than in 1929 and 17 who handled more in 1931 than in 1929. Out of 59 which were new in 1930 and were also active in 1931, 25 handled more business in 1931 than in 1930.

The conclusion of this study is that the contraction of building activity that has been in progress during the past four years has reduced the personnel of the active architectural profession only slightly in total numbers, but has at the same time brought about many changes. While we have no definite figures on the turnover in the profession previous to 1928, we may safely assume that the depression has made it more rapid and far-reaching than before. While a large degree of continuity is being maintained the fact that new firms are appearing at the rate of more than 2,000 a year is highly significant.

In closing, it should be emphasized that all figures given in this article cover the 37 states east of the Rocky Mountains and not the entire country. Judging from the annual distribution lists of Sweet's Architectural Catalogues the number of firms to be added for the 11 western states is about 16 per cent.

ILLUSTRATED NEWS

LARGEST MURAL IN THE WORLD for Rockefeller Center. The artist of this mural, measuring 40 by 60 feet, is Ezra Winter. The painting, which represents the Quest for the Fountain of Youth will decorate the Grand Foyer of the International Music Hall, Rockefeller Center.



FRENCH BUILDING to be erected on the Fifth Avenue site of Rockefeller Center, New York City.

Keystone-Underwood

OLYMPIC VILLAGE AT LOS ANGELES. Athletes of various countries competing in the Olympics will be housed in this temporary village. When completed, there will be five miles of streets, lined on either side by small houses, each with two bedrooms, closets and shower bath.

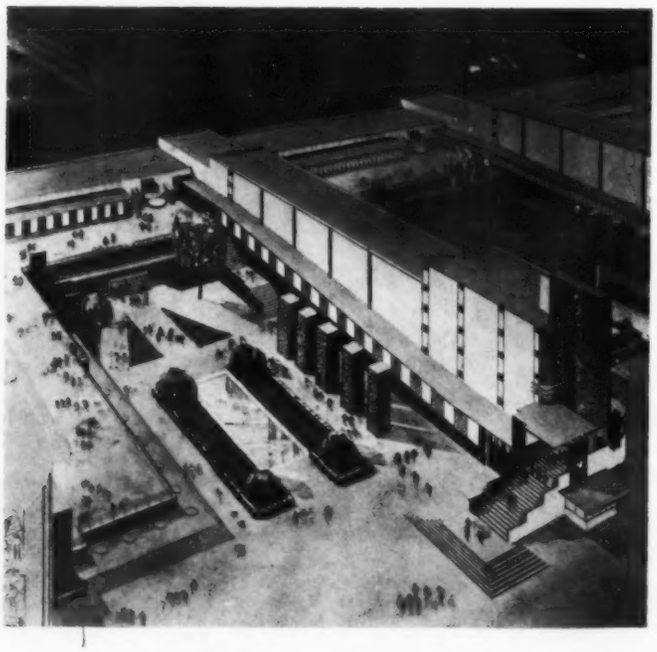
COPLEY HOSPITAL AT AURORA, ILLINOIS, by Schmidt, Garden and Erikson, architects. This building, an addition to an existing hospital, is now nearing completion. It is faced with variegated dark red brick trimmed with Bedford stone.

POST OFFICE AND COURT HOUSE AT CHATTANOOGA, TENNESSEE. R. H. Hunt Company of Chattanooga are the architects, with Shreve, Lamb and Harmon as consultants. The rendering is by Ernest Born.

NEW FEDERAL BUILDING AT NEWARK, NEW JERSEY. William E. Lehman and George Oakley Totten, Jr. are the associated architects of this federal building housing post office, court house, customs, internal revenue and other departments.

Smedley

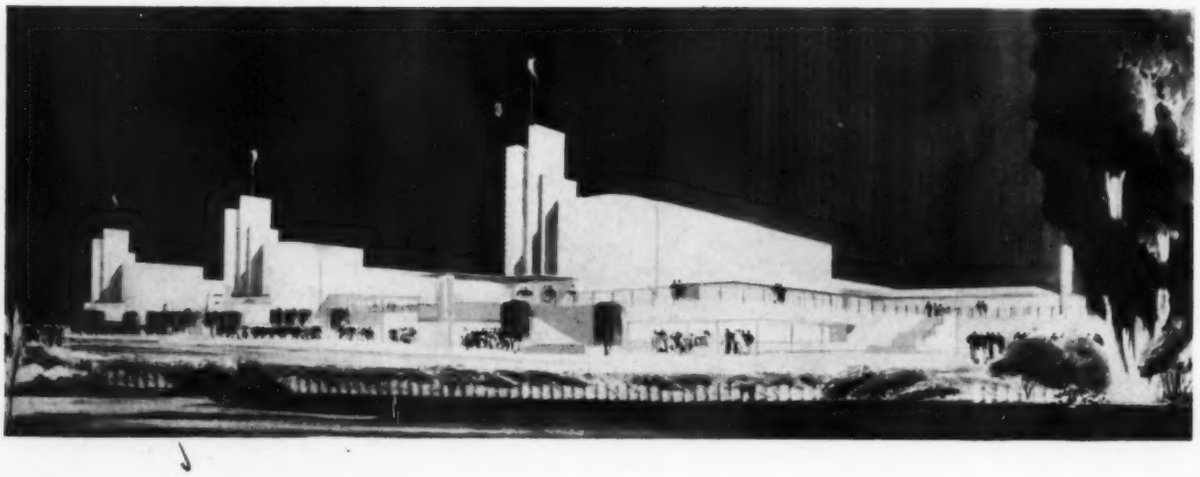
N. Y. Evening Post

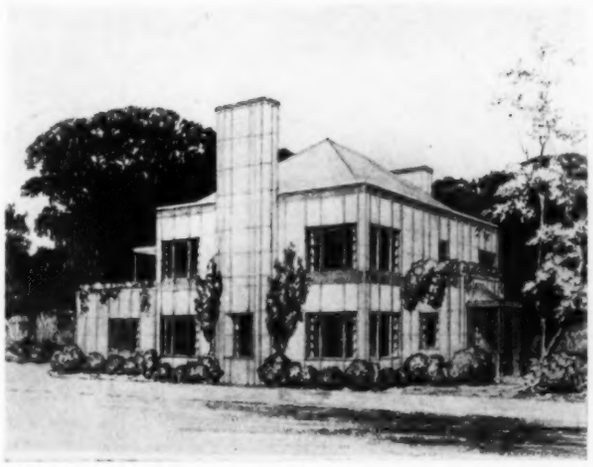


WASHINGTON IMPERSONATED BY KENNETH M. MURCHISON, ARCHITECT. The Washington bicentennial pageant celebrated April 30 in New York City was directed by Mr. Murchison. The building at the left is a replica of the old Federal Hall in New York: it has been erected in Bryant Park, Manhattan, for the Bicentennial Commission by Joseph H. Freedlander, architect.

GENERAL EXHIBITS GROUP designed by Harvey Wiley Corbett for a Century of Progress, the 1933 World's Fair in Chicago. Each pavilion in this group will house a separate branch of industry.

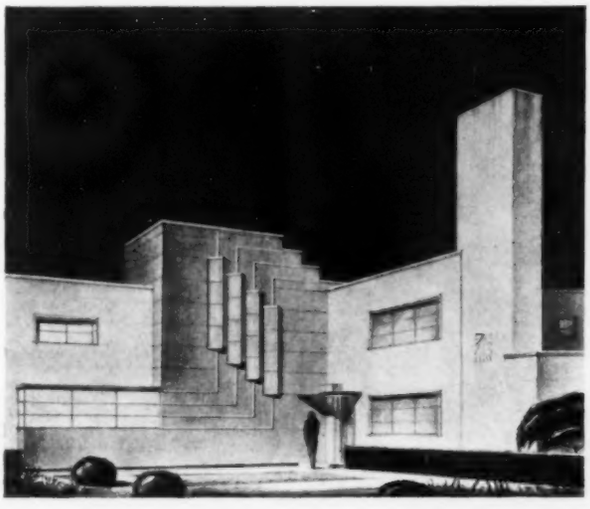
Below, another view of the series of pavilions, as seen from the shores of the lagoon. At night, floodlights will illuminate the buildings with constantly changing colors.



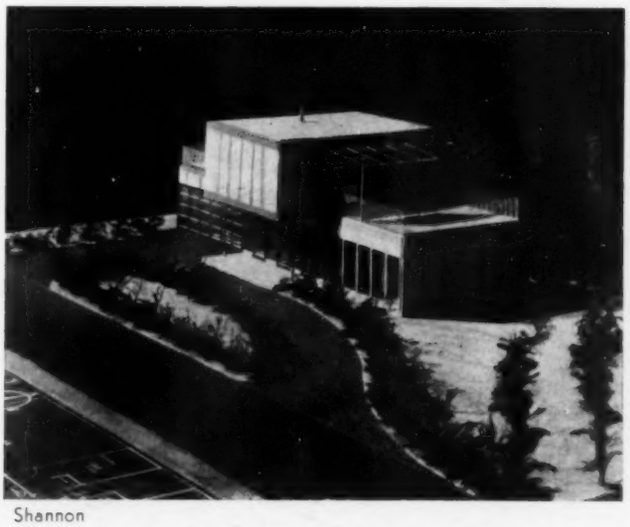


FIRST PORCELAIN-ENAMEL HOUSE, sponsored by the Ferro Enamel Corporation is under construction in Cleveland. Exterior porcelain-enamel sheets are $1/2$" deep, panels varying in size up to about 30" square and "sandwiching" a fiber insulating board held by a waterproof glue. Special steel studs are fabricated. Horizontal joints have a slight ship-lap. The total wall thickness is about 4 inches. Charles Bacon Rowley and Associates are the architects and engineers, with Meade Ashley Spencer as associate.

EXPERIMENTAL FRAMELESS STEEL HOUSE erected in a Cleveland suburb by the Insulated Steel Floor and Wall Company. Stamped steel sheets are used for the construction of floors and walls. Overlapping joints are welded and a filling of mineral wool is used for insulation between the steel sheets. This system of construction is said to have unusual heat and sound insulating qualities, and a flexibility which makes it adaptable to almost any type of building. The experimental work is under the direction of Mills G. Clark of the American Rolling Mill Company.



GARDEN FACADE OF REID HOUSE at Rome, N. Y., by Pierre Blouke, Chicago architect. This house uses the Dovell system of steel framing, for the floors are supported continuously on steel-plate spandrels; cantilevers, which are units with the columns, allow shorter spans. Curtain walls used in conjunction with the steel frame consist of copper-covered hollow gypsum blocks in large units.



Shannon

MODEL OF FARMHOUSE OF LOW COST with use of available materials produced by industry. Light steel tubes support a stamped steel floor system. Exterior walls and partitions are of 1" insulating board faced with enameled sheet steel. The house was designed by A. Lawrence Kocher and Albert Frey for the President's Conference on Home Building and Home Ownership, 1931.

HOUSING RESEARCH ADVANCED THROUGH ARCHITECTS' EMERGENCY RELIEF WORK

To replace obsolete structures in many of our cities with new buildings which will not in themselves soon become slums demands a correlated knowledge of advancing standards of living and advancing achievements in science and industry. Coordinated information is needed by the architectural profession. Present efforts by the New York Emergency Relief Committee indicate this need.

Manufacturers are now marketing many new materials and products which increase the technical efficiency of structures. Other products, in increasing volume, are being developed. The Structural Service Committee of the American Institute of Architects and other agencies have been instrumental in bringing such information to the attention of designers. Continued progress in this direction can be facilitated by an intelligent direction.

Architectural groups should also accomplish much in the study of living requirements. Information acquired in this field can be related directly to industry as recommendations for new products. Communication and transportation facilities should be considered in relation to new housing forms. The mobility of the structure, its expected life span, and its degree of proof against nerve shock, fatigue and repression, as well as such external forces as earthquakes, floods, storms, fire, insects and disease are other points of study. Such is the program of the Structural Study Associates, a voluntary nonprofit-making organization, consisting of architects, engineers and builders, recently formed in New York City.

Research in this latter direction promises much for rising standards of living. The architectural profession, with relief funds and with unemployed but well-trained designers now available for such undertakings, has an unusual opportunity for accomplishment. The American Institute of Architects, by reason of its experience and wide membership, should sponsor this research direction.

WHAT IS NOW BEING DONE IN EMERGENCY RELIEF MEASURES

In New York

A total of 2,132 men have registered with the Architects' Emergency Relief Committee, headed by Julian Clarence Levi as chairman; approximately 700 of these applicants have been given employment. Funds have been raised through voluntary donations by the architectural profession and through activities by the women's committee under the direction of Mrs. Joseph Urban. A campaign to raise $100,000 is now under way.

The money has been expended in direct relief and lodging, and in cash prizes for best designs submitted in two architectural competitions. In addition to those men engaged in emergency relief work for the Gibson and Prosser committees, and others given independent employment in business and architectural offices, a hundred men have been selected for investigational work under the direction of publications and research agencies.

In Boston

To relieve unemployment, the Boston Society of Architects and engineering societies of Boston have organized the Emergency Planning and Research Bureau, Inc. The program of this organization involves contributions made by practicing architects in weekly amounts according to their ability to pay, and by draftsmen according to a percentage of their weekly salaries. The policy of this Bureau, according to William Stanley Parker who together with Hubert G. Ripley and James F. Clapp are representing the Boston Society of Architects in this relief work, is to provide useful employment adapted to the technical training of the men given employment. The general rate of wages is $15 for a five-day week.

In Philadelphia

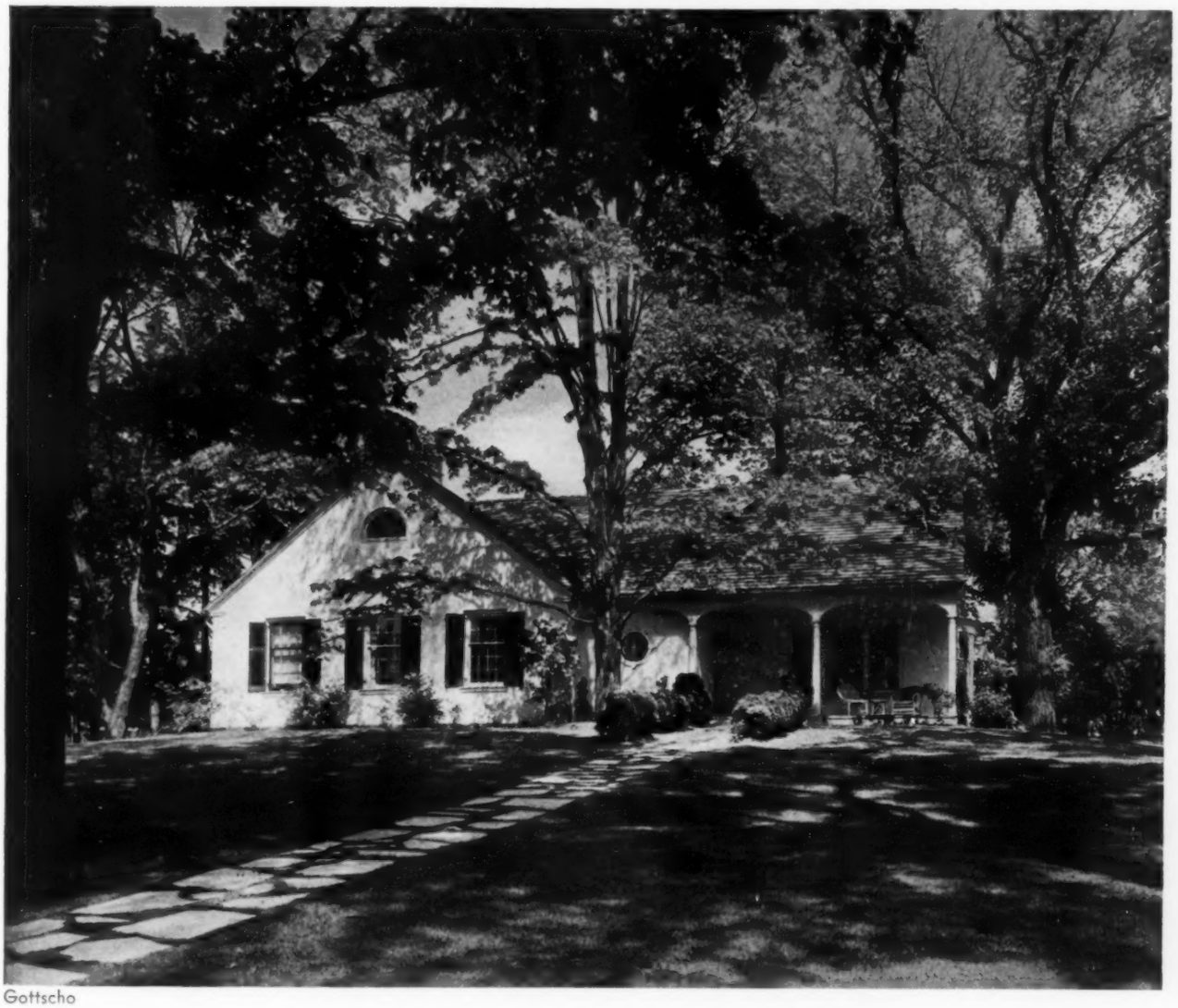
Unemployed draftsmen have been engaged by the Chapter of the American Institute of Architects, to measure and record historical buildings in "old Philadelphia," according to Sydney Martin, Chairman of the committee in charge of this work:

"About sixty in all have received help from our Committee and at the present writing forty-one are receiving a weekly wage. Due to the shortage of funds we have found it necessary to drop the men to whom we had been giving one and two day's work and to put the remainder on a $15 basis for a five day week.

"We have now made complete measured drawings of 56 projects and have a number of others on the boards. We have gone far beyond the confines of 'Old Philadelphia,' and have developed sufficient material for at least two other volumes were funds available.

"In addition to an original $5,000, we have raised from the Chapter and their employees $8,300 and from friends of the profession about $4,700 making $18,000 in all."

PORTFOLIO OF CURRENT ARCHITECTURE



Gottscho

DEAN'S RESIDENCE AT WELLS COLLEGE, AURORA, NEW YORK
DWIGHT JAMES BAUM, ARCHITECT

OTHER BUILDINGS ILLUSTRATED IN THIS PORTFOLIO:

AULT PARK RECREATION BUILDING, CINCINNATI — Fechheimer and Ihorst, Architects

HOUSE OF MRS. D. D. COTTON, SANTA BARBARA, CALIFORNIA — Roland E. Coate, Architect

HOUSE OF WILLIAM E. HART, LOS ANGELES — R. E. Coate, Architect

HOUSE OF MR. AND MRS. H. C. LIPPIATT AND MRS. F. M. P. TAYLOR AT BEL AIR, CALIFORNIA — Roland E. Coate, Architect

HEALY CHAPEL, AURORA, ILLINOIS — George G. Elmslie, Architect

REED MEMORIAL LIBRARY, LAKE FOREST, ILLINOIS — Edwin A. Clark, Architect

SEAMEN'S HOUSE, Y. M. C. A., NEW YORK CITY — Shreve, Lamb and Harmon, Architects

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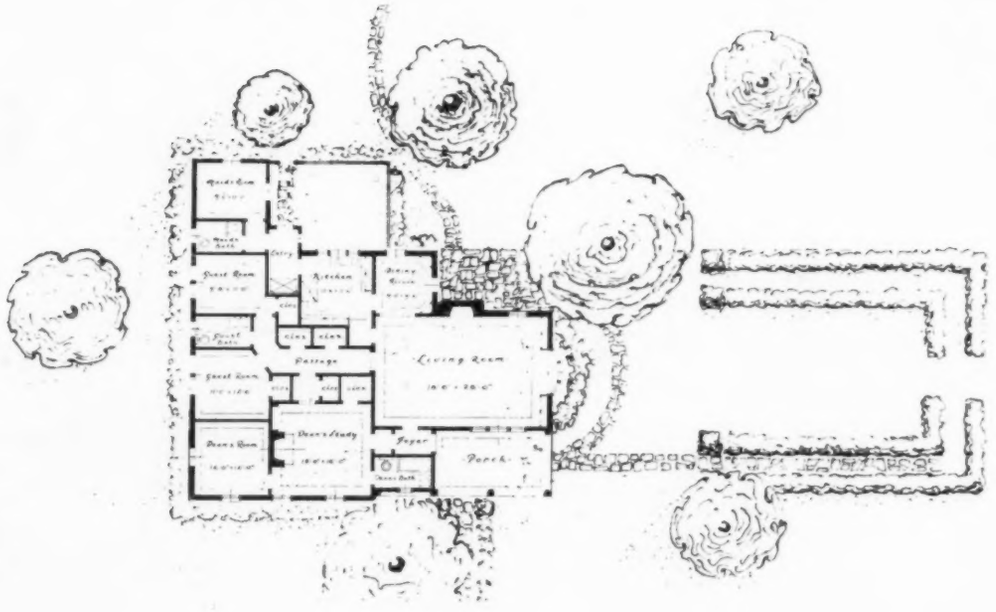

DEAN'S COTTAGE AT WELLS COLLEGE
AURORA, NEW YORK
DWIGHT JAMES BAUM, ARCHITECT

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DEAN'S COTTAGE AT WELLS COLLEGE
AURORA, NEW YORK
DWIGHT JAMES BAUM, ARCHITECT

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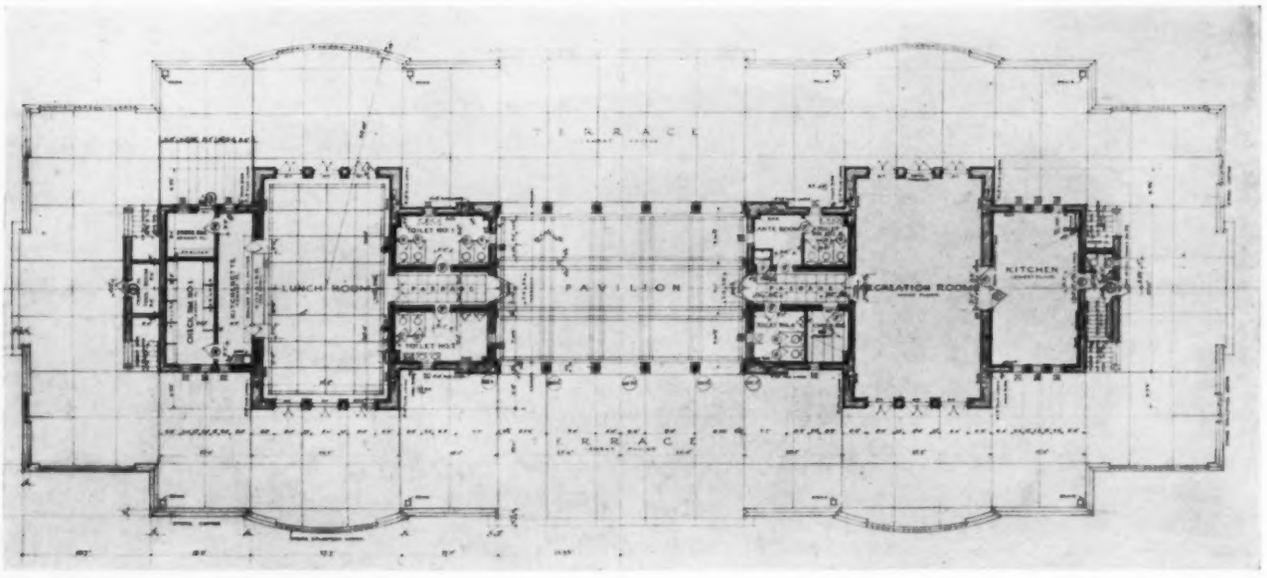

AULT PARK RECREATION BUILDING
CINCINNATI
FECHHEIMER AND IHORST, ARCHITECTS

Haight

HOUSE OF MRS. D. D. COTTON
SANTA BARBARA, CALIFORNIA
ROLAND E. COATE, ARCHITECT

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HOUSE OF MRS. D. D. COTTON
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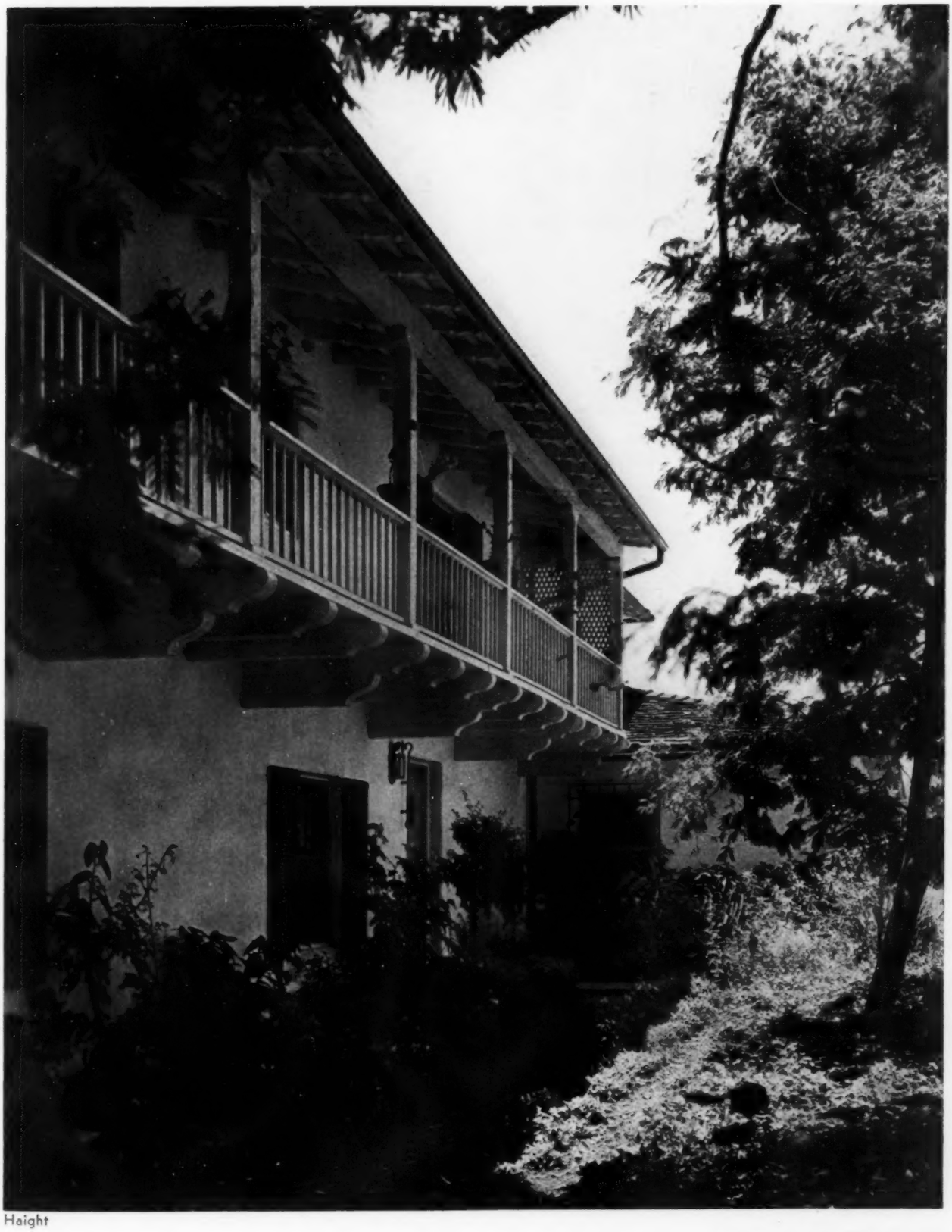

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HOUSE OF MRS. D. D. COTTON
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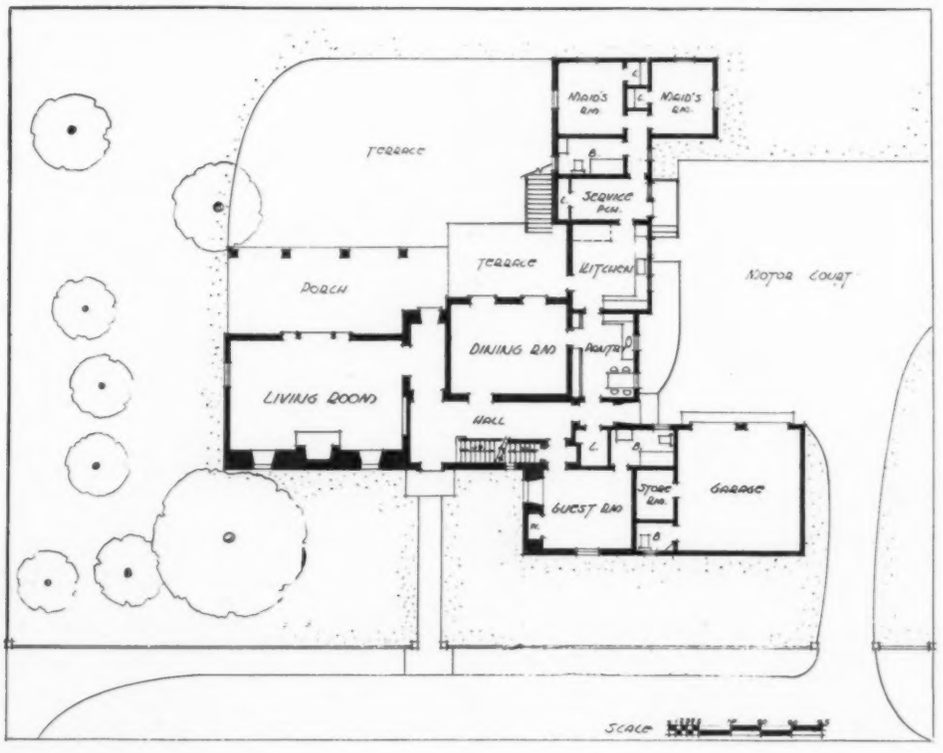

HOUSE OF MRS. D. D. COTTON
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HOUSE OF WILLIAM B. HART
LOS ANGELES
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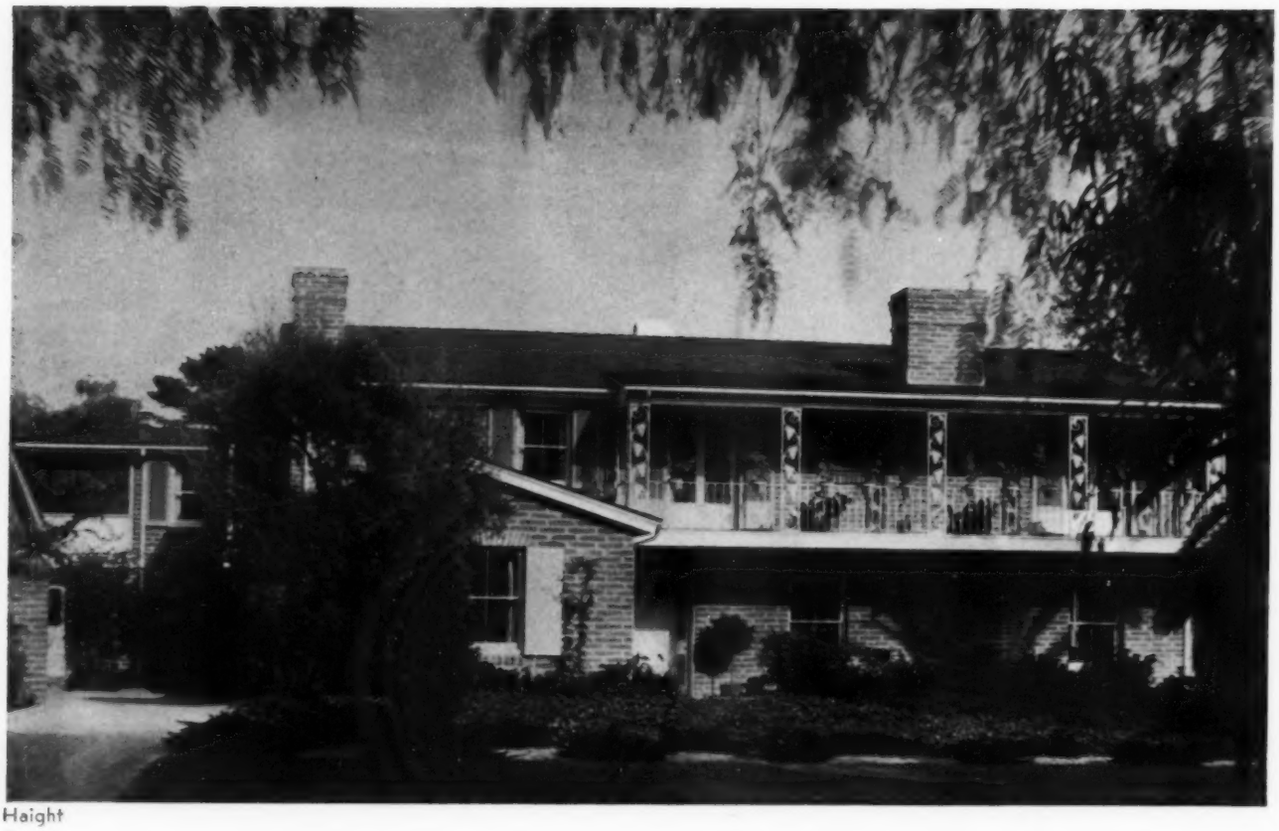

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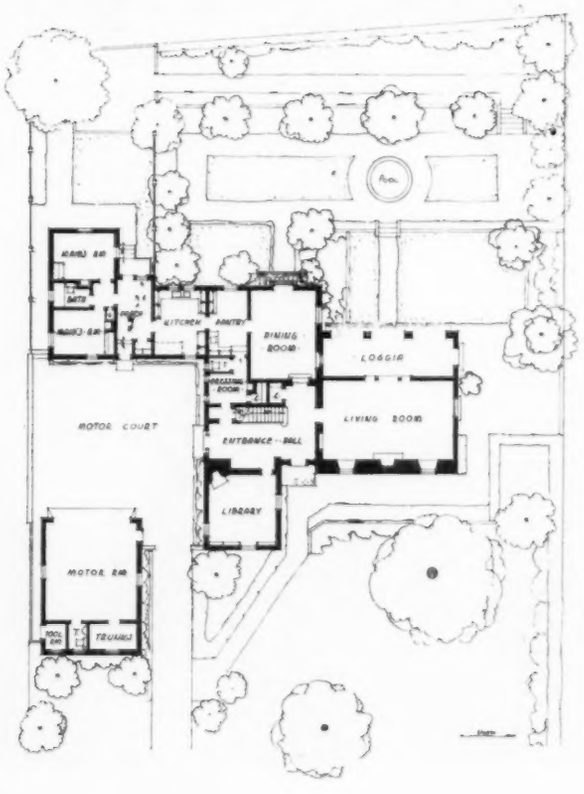

HOUSE OF WILLIAM B. HART
LOS ANGELES
ROLAND E. COATE, ARCHITECT

Haight

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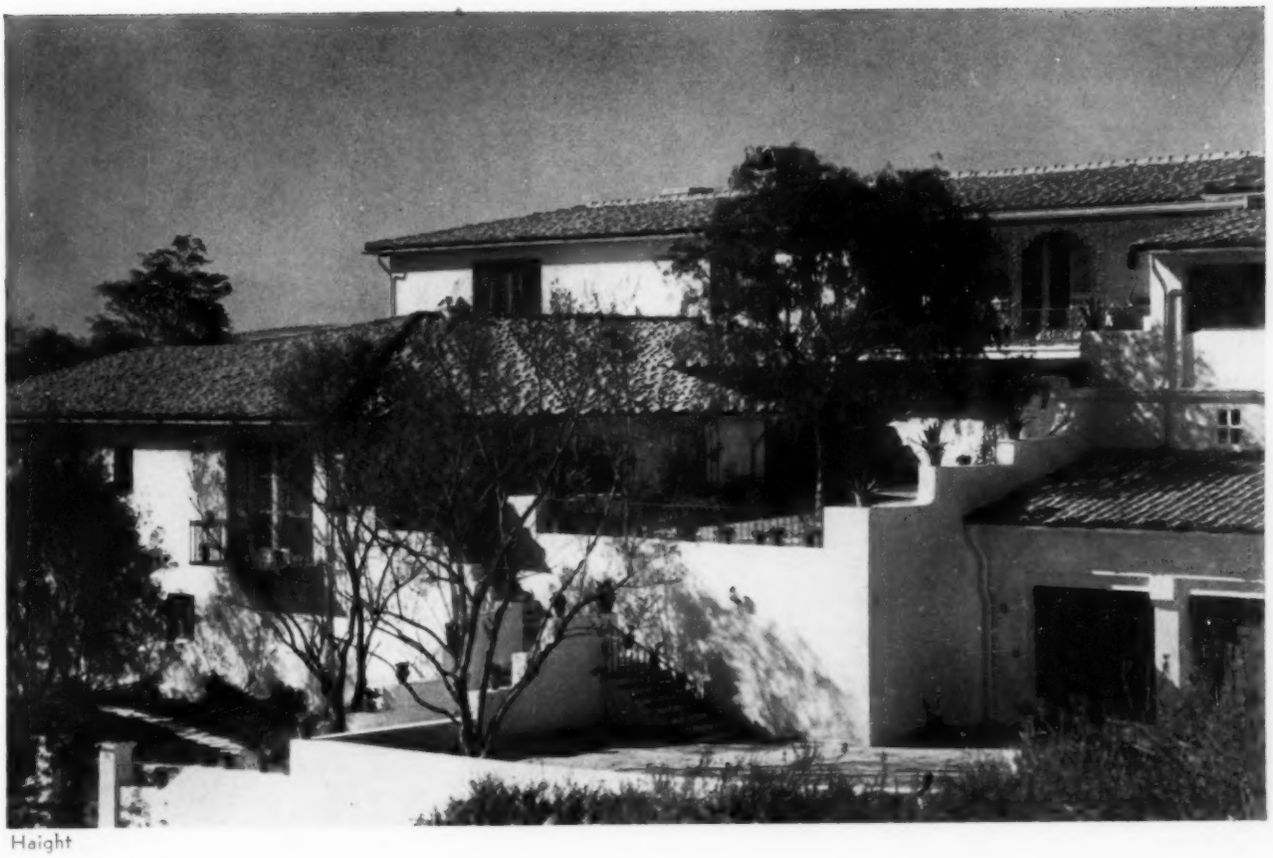

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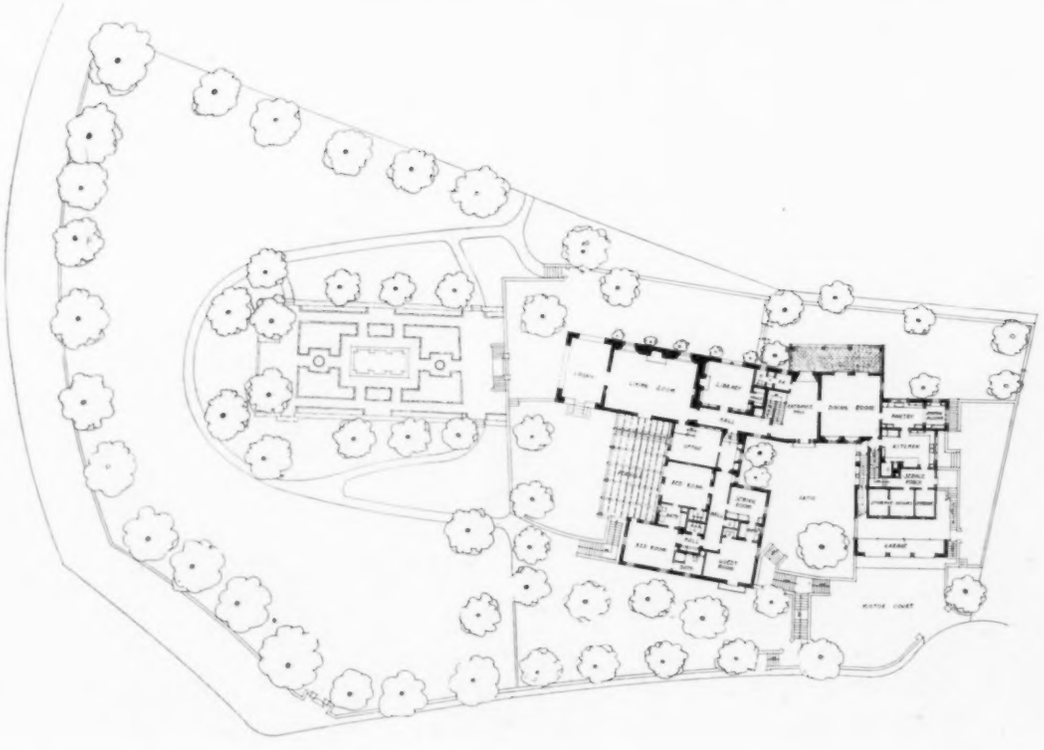

HOUSE OF MR. AND MRS. H. C. LIPPIATT AND MRS. F. M. P. TAYLOR AT BEL AIR, CALIF. ROLAND E. COATE, ARCHITECT

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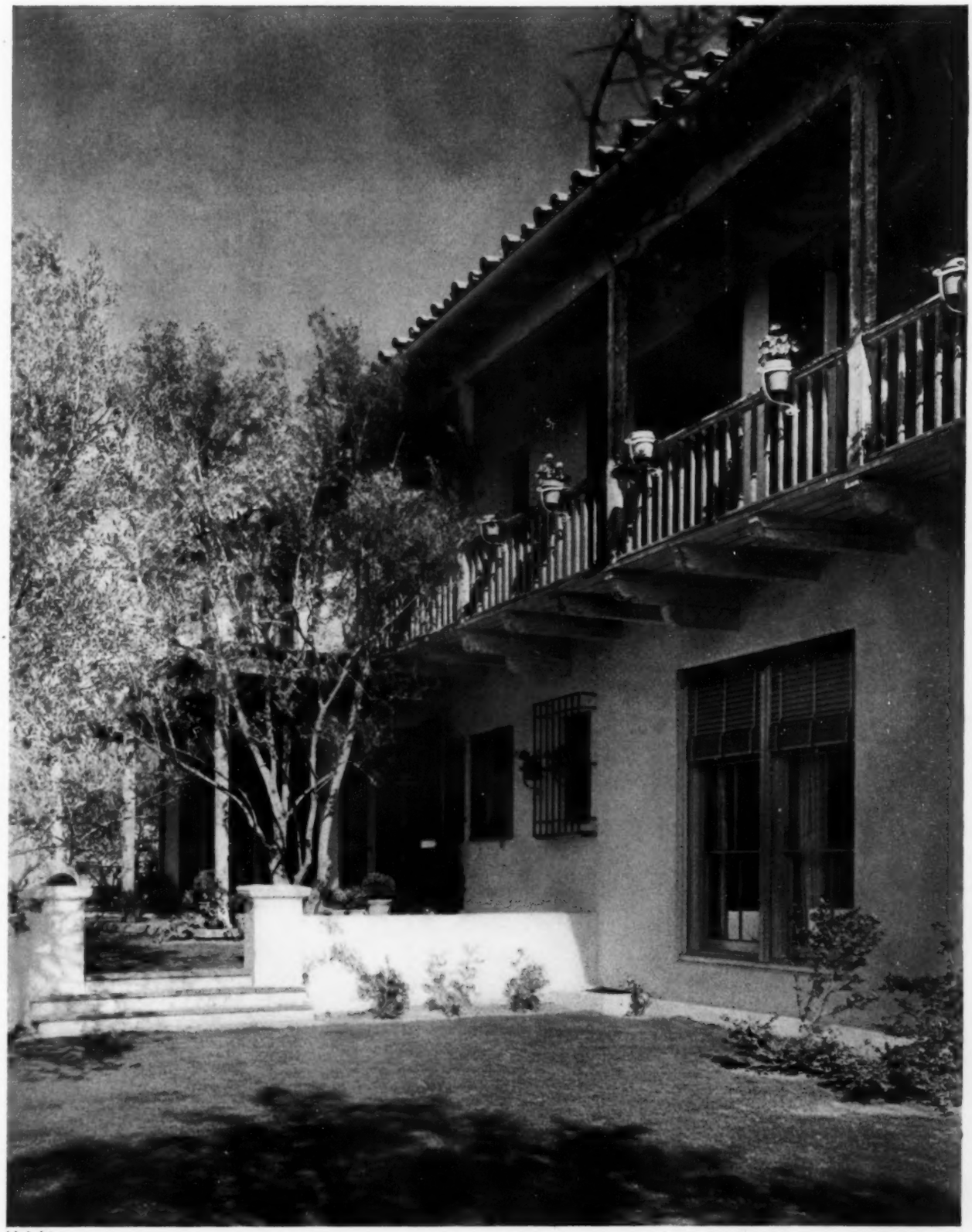
HOUSE OF MR. AND MRS. H. C. LIPPIATT AND MRS. F. M. P. TAYLOR AT BEL AIR, CALIF.
ROLAND E. COATE, ARCHITECT



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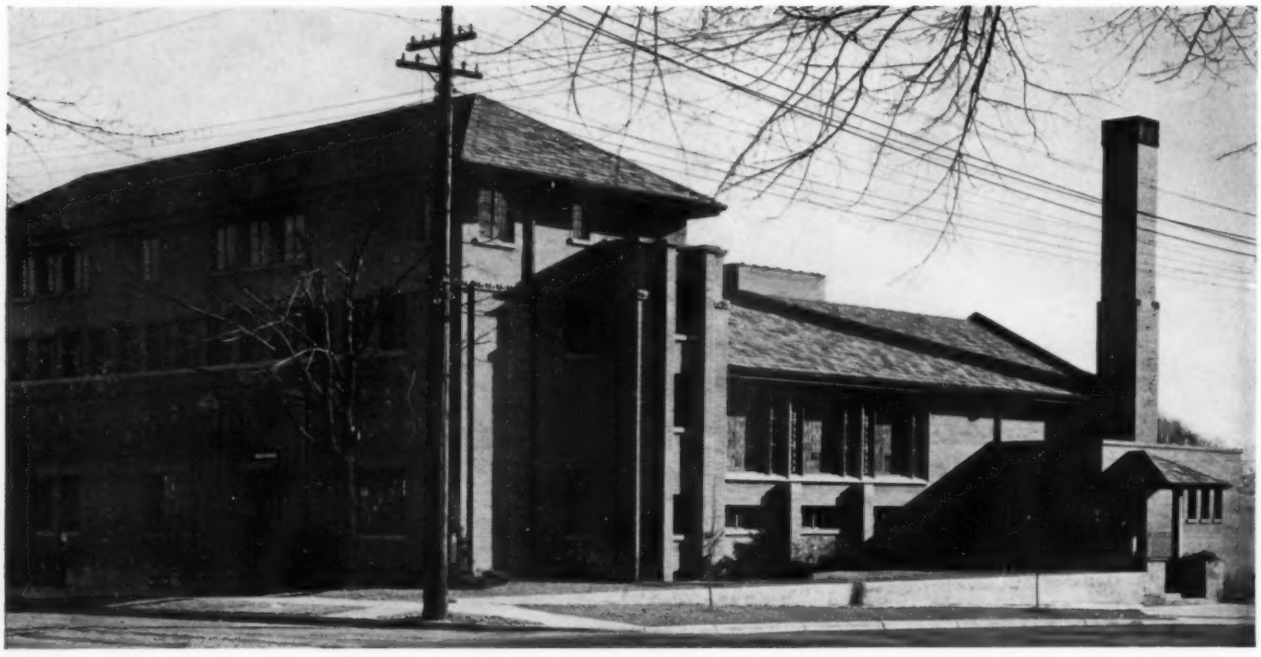
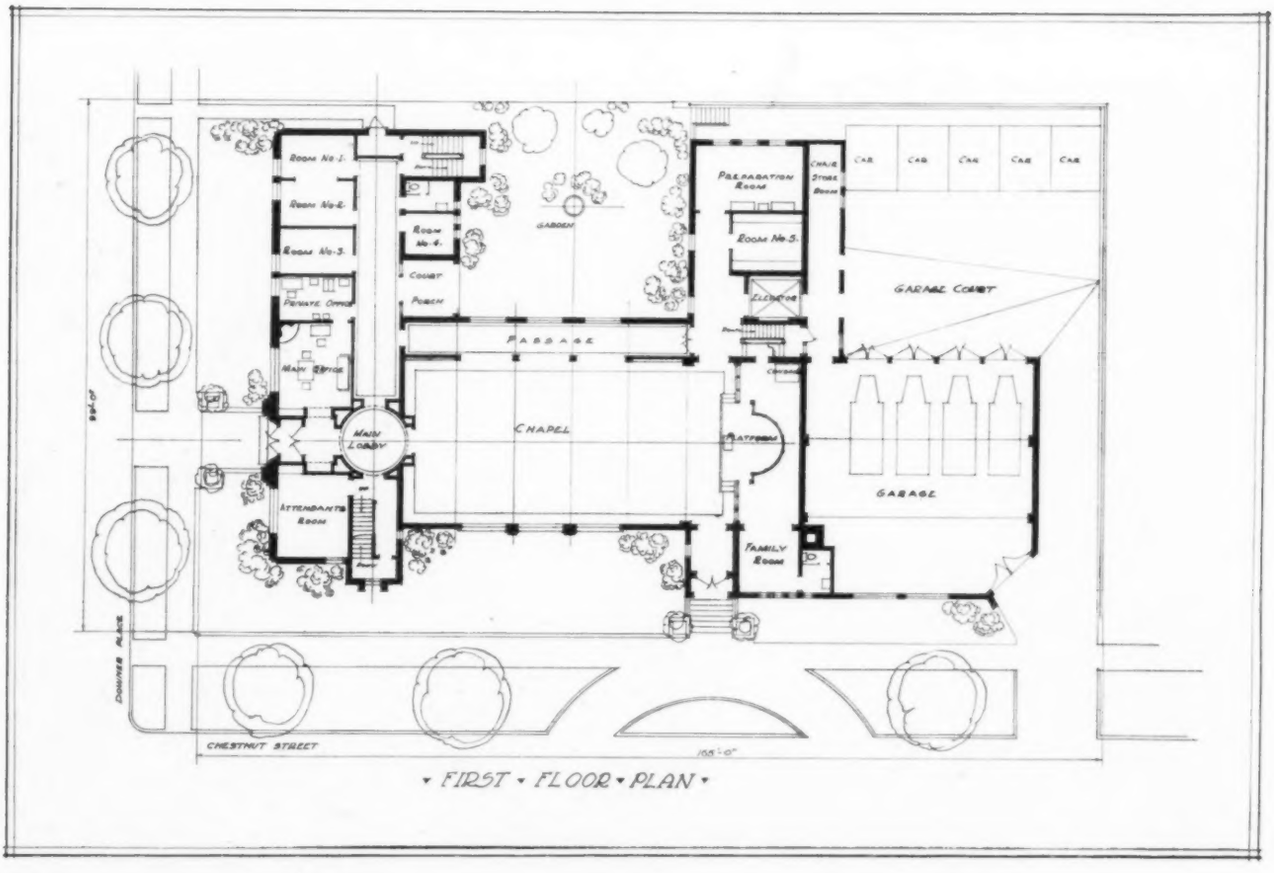
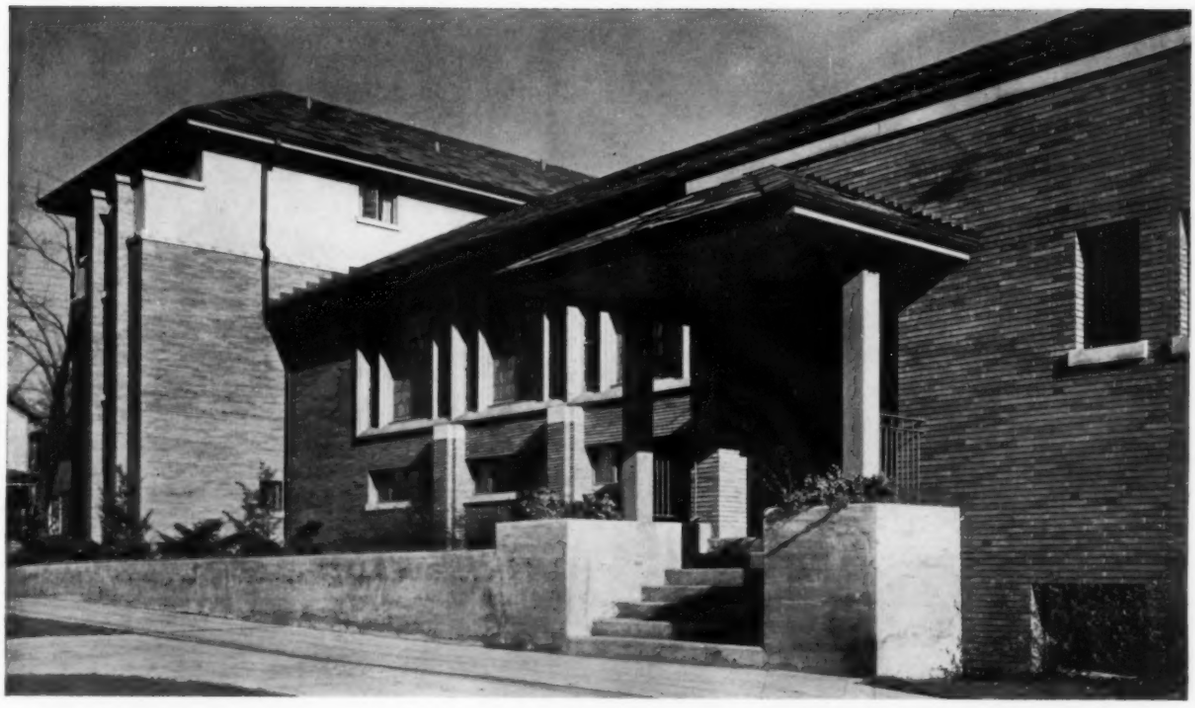




HEALY CHAPEL
AURORA, ILLINOIS
GEORGE G. ELMSLIE, ARCHITECT

The Roman brick of the exterior is golden in color. Horizontal joints are raked, vertical joints flush. The roof is slate.



The second floor is given to institutional functions, the third to living quarters of employers. The building, completely decorated, cost 43 cents a cubic foot.

HEALY CHAPEL
AURORA, ILLINOIS
GEORGE G. ELMSLIE, ARCHITECT

Trowbridge

Outside reading court. Terrace of slate flagging.

REED MEMORIAL LIBRARY
LAKE FOREST, ILLINOIS
EDWIN H. CLARK, ARCHITECT

Trowbridge

• FIRST FLOOR PLAN •

Main entrance and approaches.

REED MEMORIAL LIBRARY
LAKE FOREST, ILLINOIS
EDWIN H. CLARK, ARCHITECT

Trowbridge

Adults' reading room.

REED MEMORIAL LIBRARY
LAKE FOREST, ILLINOIS
EDWIN H. CLARK, ARCHITECT

Trowbridge

View of reading room from circulation room.

REED MEMORIAL LIBRARY
LAKE FOREST, ILLINOIS
EDWIN H. CLARK, ARCHITECT

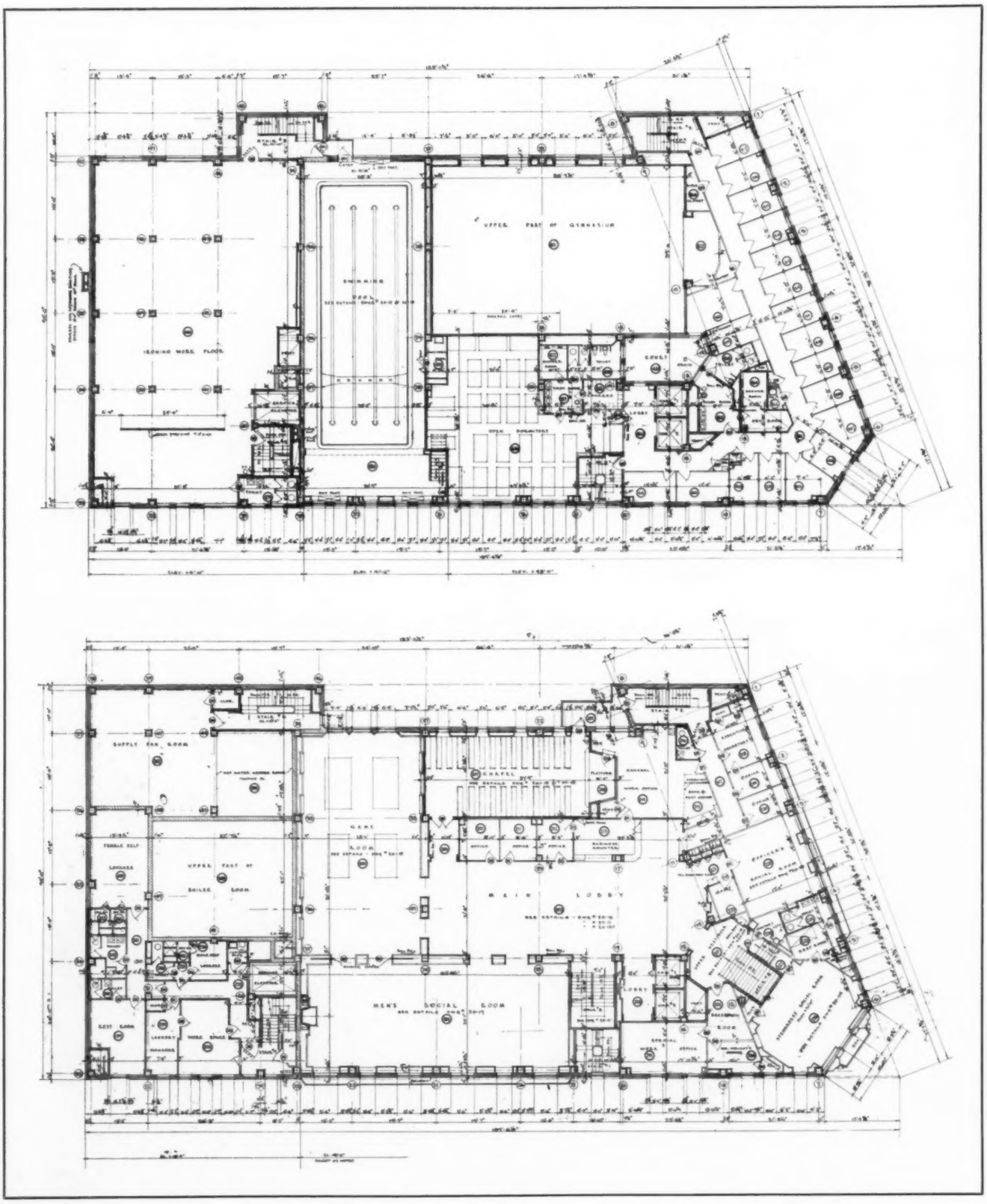
Trowbridge

Charging desk. White oak paneling, cork floor and marble base.

REED MEMORIAL LIBRARY
LAKE FOREST, ILLINOIS
EDWIN H. CLARK, ARCHITECT

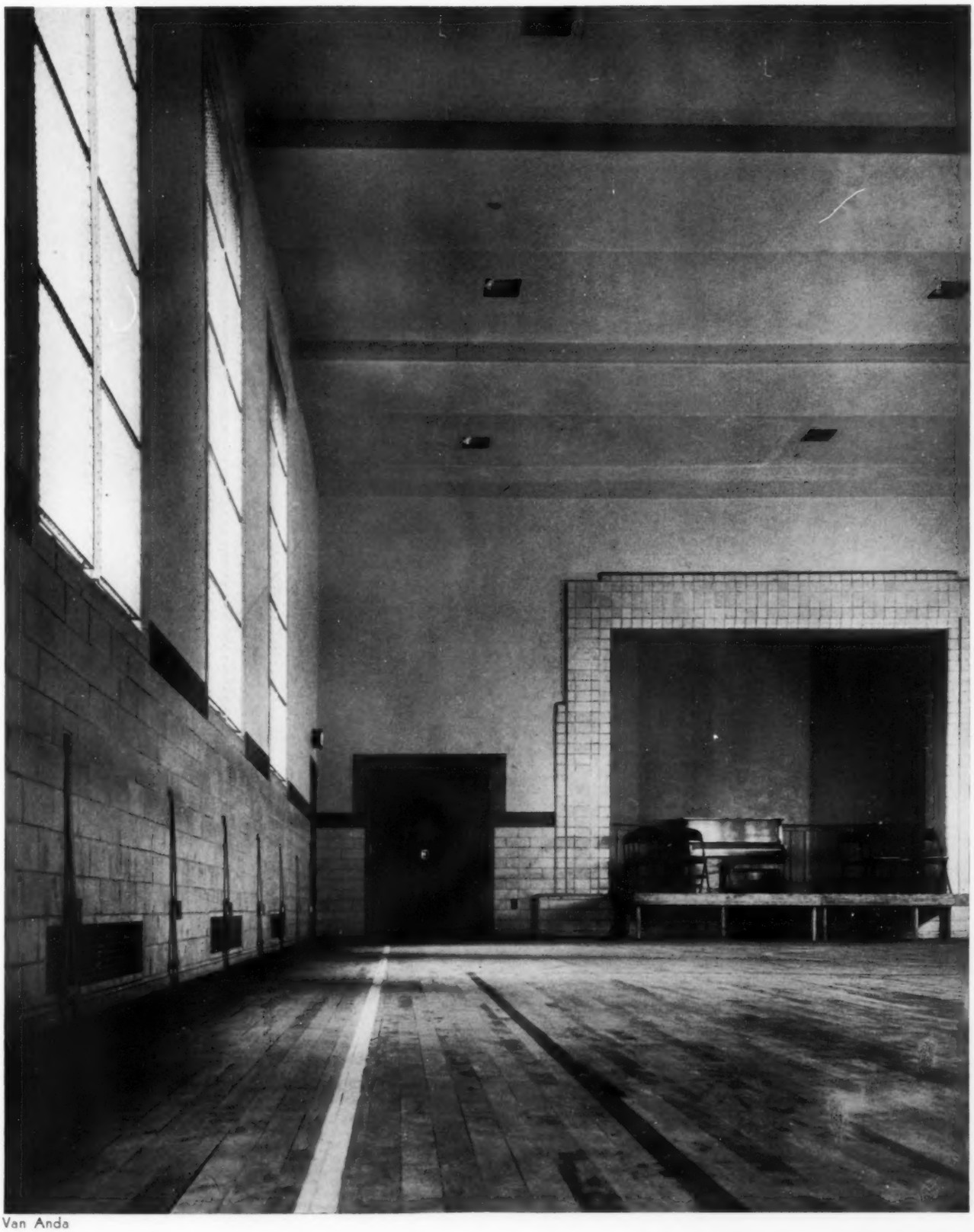
Van Anda

SEAMEN'S HOUSE — Y. M. C. A.
NEW YORK CITY
SHREVE, LAMB AND HARMON, ARCHITECTS



Second and fourth floor plans.

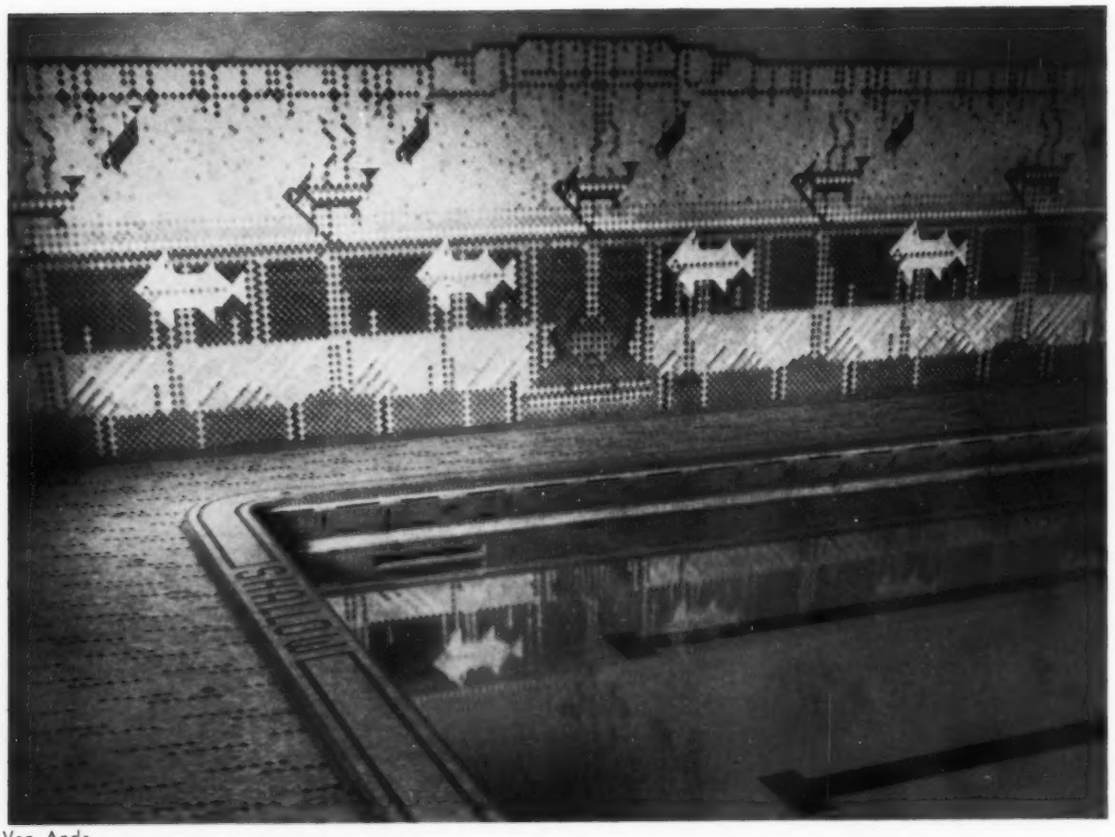
SEAMEN'S HOUSE—Y. M. C. A.
NEW YORK CITY
SHREVE, LAMB AND HARMON, ARCHITECTS



Van Anda

Gymnasium.

SEAMEN'S HOUSE — Y. M. C. A.
NEW YORK CITY
SHREVE, LAMB AND HARMON, ARCHITECTS



Van Anda

Detail of swimming pool.

Van Anda

Lunch counter.

SEAMEN'S HOUSE — Y. M. C. A.
NEW YORK CITY
SHREVE, LAMB AND HARMON, ARCHITECTS

DRAFTING AND DESIGN PROBLEMS

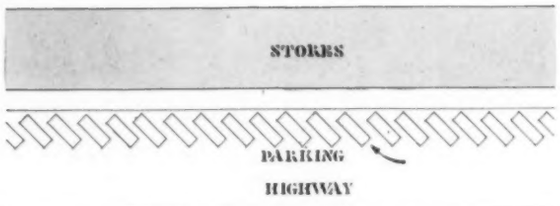
NEIGHBORHOOD SHOPPING CENTERS

Keystone View

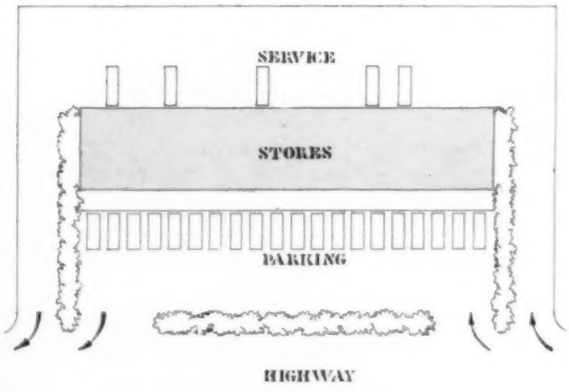
SHOPPING DISTRICT OF MAIN STREET CHARACTER. This unrelated "Coney Island Architecture" suggests the need for cooperative and unified planning by architects.

Underwood

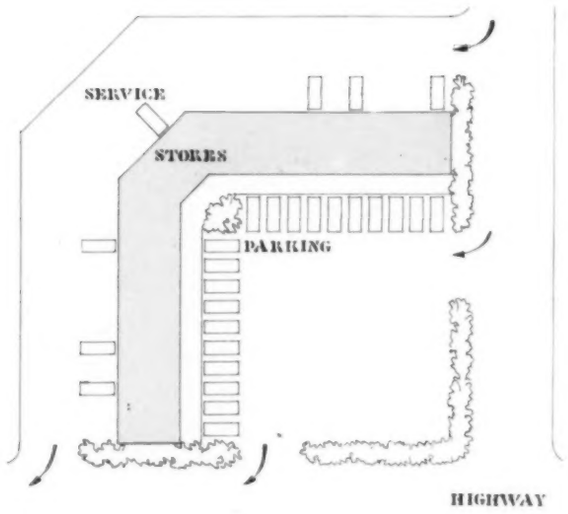
A PLANNED GROUPING OF SHOPS with parking space that does not interfere with traffic of main thoroughfare. The design by one architect of buildings for a variety of uses results in uniformity.



PARKING AT CURB along important streets interferes with traffic.

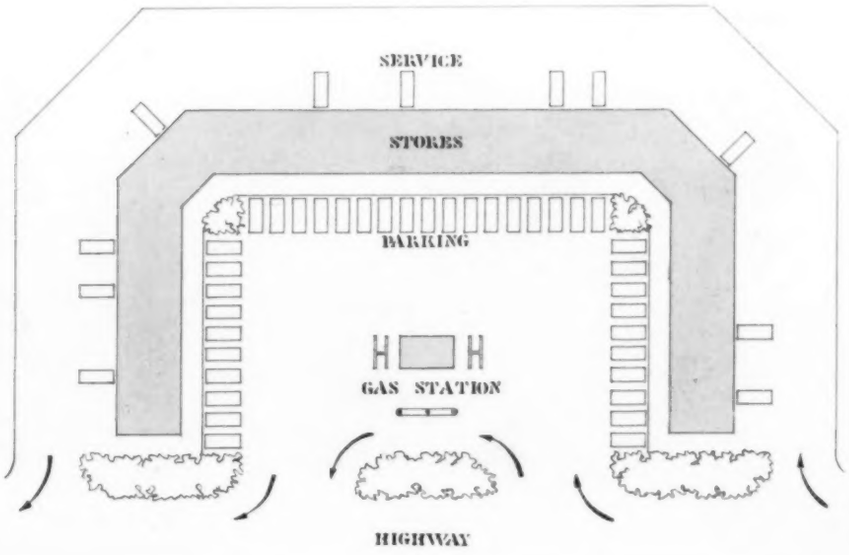


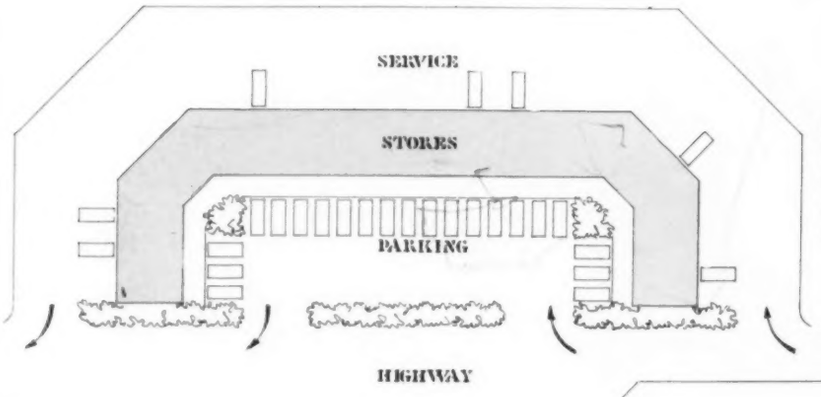
A MID-BLOCK SHOPPING CENTER with stores and parking space set back from highway. The service delivery is by separate driveway to rear. This does not interfere with customer entrance and parking.



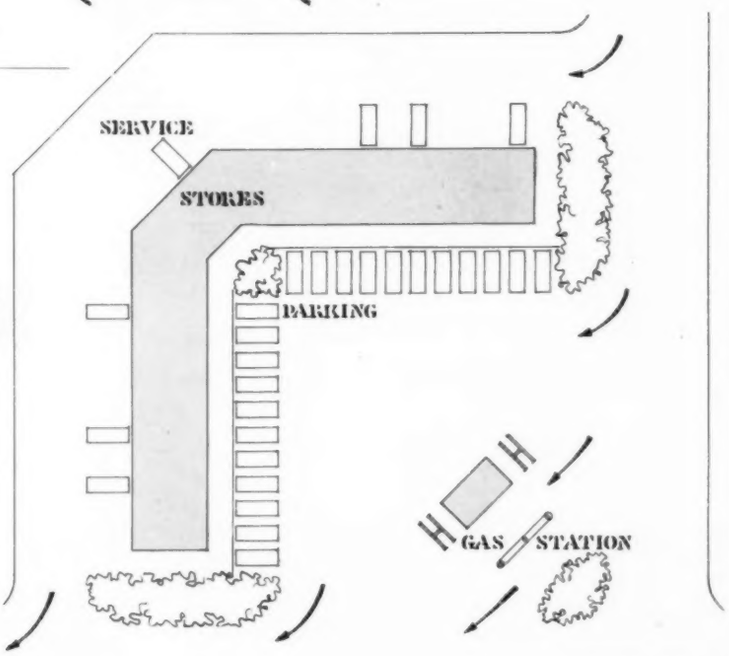
AN ARRANGEMENT OF STORES AND CAR PARKING at intersection of two streets. The main shopping traffic is from side street to main highway. This scheme is suited to a location adjoining a housing subdivision.

GROUPING OF STORES AROUND GAS STATIONS results from the control of strategic sites by gas station operators. Architects can undertake unified and attractive planning and design of roadside buildings, including required approaches and planting.

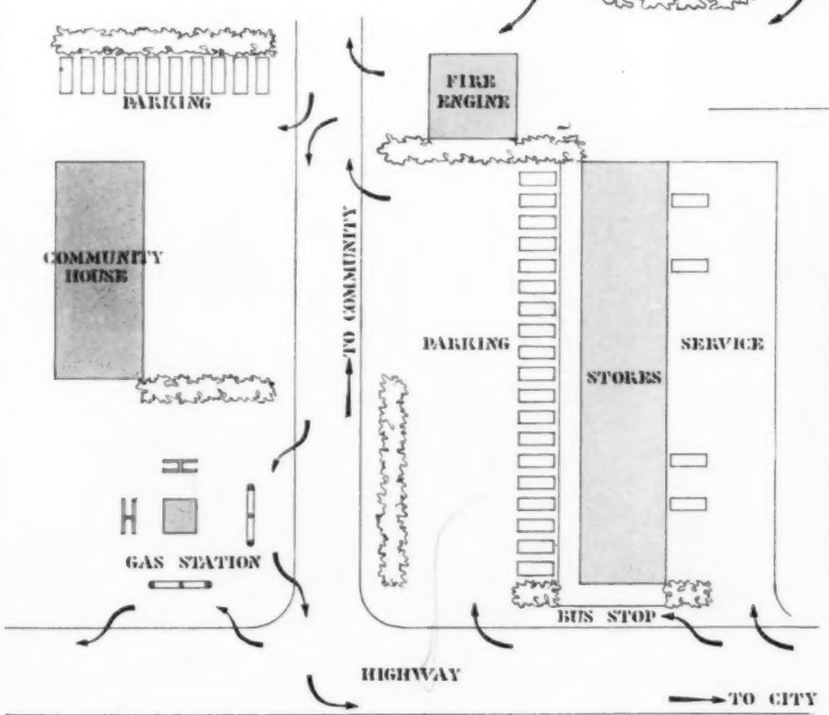




DRIVE-IN MARKET ON SITE OF RESTRICTED DEPTH. The "court" arrangement is more attractive to auto shoppers than straight rows of stores adjoining street.



COMBINATION OF STORES AND GAS STATION. Shopping traffic is from side street to main highway.



SHOPPING CENTER AT ENTRANCE TO SUBURBAN COMMUNITY. The gas station at right side of road serves outgoing traffic from community to city or to country and also traffic of highway. The stores serve the community and suburbanites who return from city by bus or auto. The community houses and firehouse are placed so as to eliminate cross traffic.

Heinrichs

Shopping group should be located in line of travel taken by residents going to and coming from work.

OFFICE BUILDING AND SHOPPING CENTER AT RADBURN, NEW JERSEY

FREDERICK A. ACKERMAN, ARCHITECT

The central motif of this shopping group is the post-office building, a place of popular activity, since a large percentage of the village inhabitants call personally for their mail.

SHOPPING CENTER FOR THE VILLAGE IMPROVEMENT COMPANY AT NEW CANAAN, CONNECTICUT

ALFRED MAUSOLFF, ARCHITECT

NOTES ON THE DESIGN OF NEIGHBORHOOD SHOPPING CENTERS*

In laying out new subdivisions—rural, suburban or metropolitan—as well as in designing new business structures in already built-up sections, the architect is confronted with the question of determining with some degree of accuracy the amount of store space which can be actually used or which is sufficient to provide for a reasonable future demand. Little definite data exists as yet, although various city planning authorities are now making detailed studies in this field. A few general points however, can be borne in mind.

Location

A shopping center for pedestrians cannot conveniently and effectively serve a residential radius of more than one-half mile. A smaller radius is desirable, but except in extremely crowded urban districts, shopping districts should not be nearer than one half mile from each other. That is, a quarter-mile radius is the minimum.

Store groups should be located on the periphery rather than in the center of a residential district. This discourages the invasion of the district by wholesalers' trucks and by transient customers. The shopping group should be located in the line of travel taken by residents going to and coming from work. It should be located where one or more square blocks, rather than a single street frontage, is available under a retail business zoning, since a concentrated business shopping center surrounding several short streets for parking is more desirable than one which is strung out along a heavily traveled highway. The former has the additional advantage of having a smaller perimeter facing residences.

Space Required

The amount of store space measured in frontage which should be provided for has been variously computed. The Regional Plan of New York suggests from 36 to 60 front feet per 100 population, giving the lower figure as a minimum and increasing in proportion as a daytime working population is added to the regular resident population of the neighborhood. Coleman Woodbury, writing in the Journal of Public Utilities and Land Economics, sets 50 front feet per 100 population as an absolute maximum, with the observation that when this is exceeded there are always vacancies. Stein and Wright, in making their studies for Radburn, computed that 69 stores, aggregating 2640 front feet, would adequately serve a neighborhood of 10,000 population.

All these figures are based on the assumption that the shopper in the neighborhood has access to a larger "downtown" business center for more specialized shopping requirements.

Number of Stores of a Given Type

"Retail Distribution Surveys" have been made by Chambers of Commerce in a number of cities and tables have been prepared showing the number of people supporting each shop of any given type. Table I gives one average of the results obtained by a set of such surveys.

Design and Layout

Combinations of stores and apartments are undesirable (unless absolutely necessary, owing to high cost of land).

One-story stores are best unless demand for local office space justifies a second story.

Widening of street in front of store to provide for parking is highly desirable, except in crowded metropolitan sections where the majority of shoppers are pedestrians. Parking space behind shops is less convenient than in front; parking, however, should be *free of through traffic.*

In rural and suburban sections widen sidewalks in front of shops and omit all planting except shade trees.

Provide separate access for trucking and delivery purposes away from main frontage of shops, either in an interior court, or a separate alley. "Park and shop" markets, forming an interior court off a main highway, would have the highway as their delivery entrance.

A single feature, such as a clock tower, flagpole, or well-designed electric sign-tower, identifying the entire group of shops, is more effective than the usual attempts at giving individual shops separate "architectural" treatment.

TABLE I

The average population per business concern in Chicago, Brooklyn and Queens (N. Y.), Cincinnati, New Haven, Hartford, Bridgeport, and Waterbury has been computed as follows:*

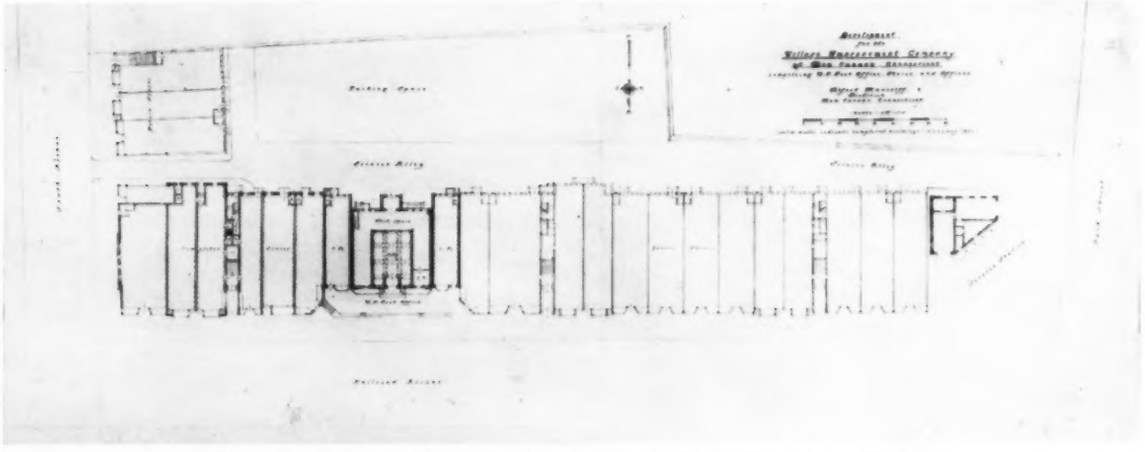
Grocery	641	Shoes	5,619
Meat market	1,023	Clothier	5,656
Restaurant	1,406	Florist	6,117
Druggist	1,681	Jewelry	6,416
Garage	2,185	Millinery	6,531
Merchant tailor	2,204	Hardware	6,647
Plumber	2,259	Cleaner and dyer	6,928
Confectionery	2,714	Delicatessen	7,568
Bakery	2,749	Laundry **	7,772
Fruits and vegetables	3,728	Musical instruments	9,785
Hotel	4,494	Bank	10,836
Furniture	4,522	Furrier	20,467
Dry goods	4,552	Typewriter	34,421
Cigars and tobacco	4,957	Sporting goods	32,241
Undertaking	5,590	Department store	45,914
Coal	5,599		

* The Neighborhood Unit, a Pattern for Planning Residential Developments. Clarence Arthur Perry.

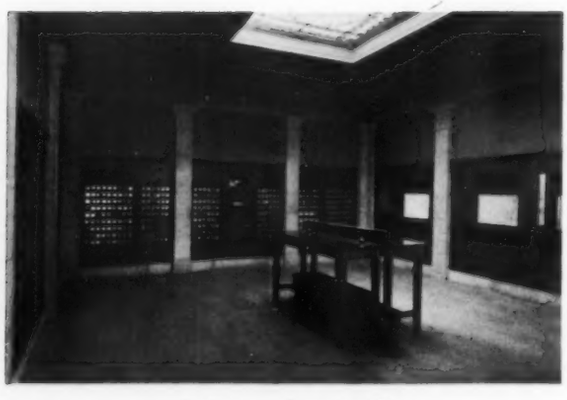
** The concerns up to and including laundries, refer to neighborhood centers; those following would be located in a general "downtown" center.

*Data supplied by Robert C. Weinberg.

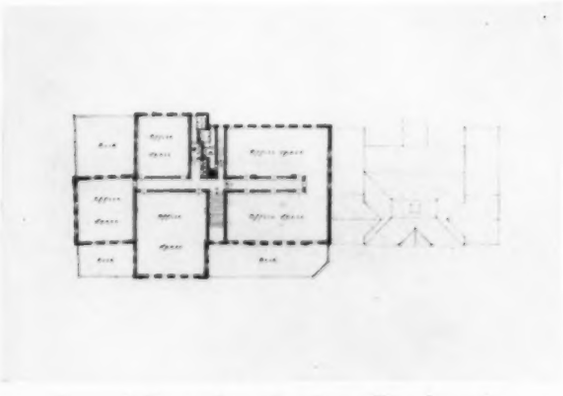
A block of seven stores with office space on upper floor.



Plan of entire development, showing central location of post-office.

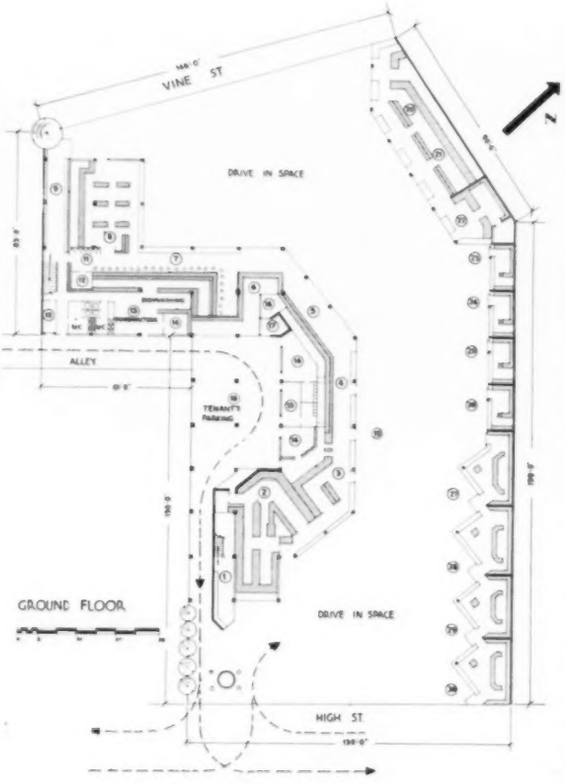


Interior of post-office.



Second floor plan, showing office layouts.

SHOPPING CENTER FOR THE VILLAGE IMPROVEMENT COMPANY AT NEW CANAAN, CONNECTICUT
ALFRED MAUSOLFF, ARCHITECT



TOTAL RENTABLE AREA:	13,610 sq. ft.
TOTAL OUTSIDE TRAFFIC AREA:	21,200 sq. ft.
STAIRWAYS, HALLS, PIERS, ETC.:	1,200 sq. ft.

KEY TO PLAN

		SQ. FT.
1.	High Street entrance and display arcade, wide stairway to upstairs shopping center	400
2.	Piggly-Wiggly grocery store	1,300
3.	Delicatessen	900
4.	Fish	600
5.	Meats	1,150
6.	Bakery	800
7.	Lunch-counter	1,200
8.	Drug store	1,200
9.	Vine Street entrance and display arcade	400
10.	Janitor, controlling incoming deliveries, main comfort room	500
11.	Public telephone booth	
12.	Office	80
13.	Lunch and café kitchen, serving upstairs pantry by means of 3 dumbwaiters	700
14.	Refrigerated storage, central refrigeration plant in rear and in control of meat concession	100
15.	Storage, lockers, washroom	280
16.	Display workroom	
17.	Baking oven	
18.	Trucking and delivery court, alley exit, tenants' parking space	2,400
19.	Customers' drive-in space—traffic and parking	18,800
20.	Fruits	600
21.	Vegetables	900
22.	Florist	500
23.	Variety house, garden hardware	200
24.	Toys	200
25.	Laundry agency	200
26.	Dry-cleaning, dry goods, or cobbler, shoeshine	200
27-30.	Specialty stores with impressive displays	1,800

DIXIE DRIVE-IN MARKET and SHOPPING CENTER, LEXINGTON, KENTUCKY

RICHARD J. NEUTRA, Architect

Site

Shortest distance from the town's business center in the direction of the main residential sections. The selected property has frontages of 130 and 146 feet or two main thoroughfares, traffic on which will furnish the majority of customers to the market. Advantageous use was made of the existing alley on the northwest side of the property.

Central Group

The layout provides for future development. It is not strictly limited to a drive-in market.

The nucleus of this market—with exception of the fruit[20] and vegetable[21] concession, which is given greatest visibility from both street entrances—is centered around a delivery court[18] with in and out alley connections to High Street. For proper segregation of freight delivery and customers it is desirable to provide such service accessibility from the rear for the main units, in particular the bakery, the meat shop and the grocery concession. This alley system is also utilized for the kitchen[13]. This kitchen, which serves both the extended lunch-counter and the roof-garden cafe, together with the grocery and the delicatessen concessions, is connected with the central refrigeration plant in the rear of the meat unit.

The sequence of units starts from High Street with the Piggly-Wiggly store[2], then runs through the delicatessen[3], the fish[4], the meat[5],

and the pastry-bakery[6] concessions and terminates at the lunch-counter[7] and the drugstore[8] at Vine Street. The convex frontline allows a maximum display frontage, long distance visibility for passing cars and a customers' approach for each store.

The comfort rooms are situated near the janitor's office at (10) which also controls incoming deliveries. Display arcades both from Vine and High Streets lead to stairways and elevators, which serve the upper office stories.

Peripheral Group

The central building is surrounded by a chain of smaller stores which, beginning with the fruit[20] and vegetable[21] concessions, follows the property line and ends with a group of shops near High Street, in such a position as to give the displays high advertising visibility from all directions. The stores near High Street should form points of interest and attraction for the entire market group. It is proposed to devote these stores to specialty business.

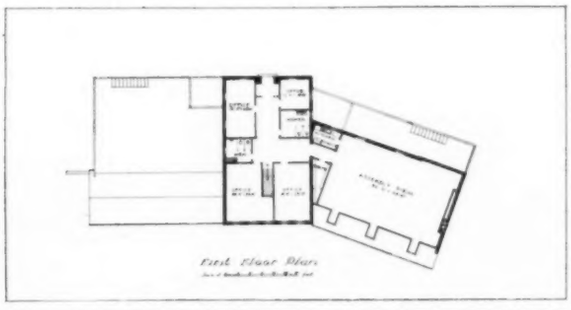
Tenants

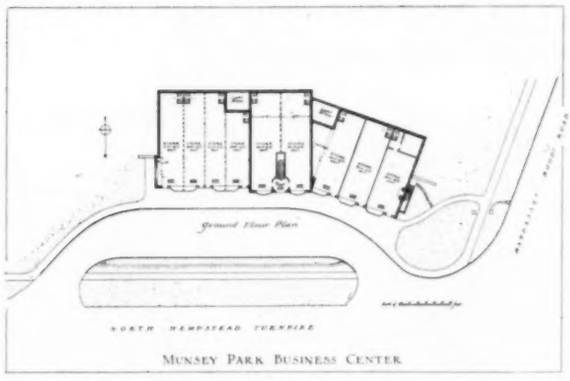
Parallel concessions within the same market to strictly competing firms, or firms carrying the same merchandise in different grades, have been tried in several Los Angeles markets. The latter case does not give much satisfaction, as the merchant paying the higher rent frequently watches the crowds turn in to the cheaper competitor. In some cases, however, such a scheme might be worked out successfully.

A very important element in promoting a successful drive-in market is the proper selection of tenants to assure a harmonious ensemble. One or two failures among the tenants to conduct their business adequately is likely to do harm to the other units. It is highly desirable that the customers become accustomed to shop in all units with confidence in a uniform quality of service.

Munsey Park Business Center adjoins a housing development and is also accessible from a main thoroughfare. The community rooms are on the upper floor with entrance at rear toward the development. The shops face the highway.

MUNSEY PARK BUSINESS CENTER, LONG ISLAND
CITY HOUSING CORPORATION
FREDERICK L. ACKERMAN, ARCHITECT





ACTIVITIES OF THE A. I. A. CHAPTERS AND ARCHITECTURAL CLUBS

Englerth

MEMBERS OF THE TENNESSEE CHAPTER OF THE A. I. A. ON TOP OF UMBRELLA ROCK, LOOKOUT MOUNTAIN, CHATTANOOGA, TENN.

Top row: Gordon L. Smith, Clarence T. Jones, Mr. Graff, W. C. Colley, A. B. Baumann, Jr., William Crutchfield, Louis H. Bull. Middle row: Charles I. Barber, Henry C. Hibbs, William J. Sayward, R. H. Hunt, W. H. Sears, Bayard S. Cairns, William Stone. Bottom row: B. F. McMurry, Walk C. Jones, B. F. Hunt, Donald W. Southgate.

Tennessee Chapter — Louis H. Bull, Chapter Secretary:

There are four relatively important cities in the Tennessee Chapter: Memphis, Knoxville, Nashville and Chattanooga. Four vice-presidents are selected yearly from the four mentioned cities and they in turn become the presiding officers in their individual city groups. Thus the Chapter keeps in touch with the activities of each city group. The annual meeting of the Chapter is usually held in the fall of the year and the place of meeting is rotated between the four cities by agreement.

Alabama Chapter — Jesse W. Green, Chapter Secretary:

Presents prizes each year for excellence in design at Alabama Polytechnic Institute.

Sponsored competition for the design and modeling of a Chapter medal.

Active in support of the proposed legislation relative to modification of the work of the Supervising Architects.

Conducted open meeting inviting all architects of locality to attend discussion by Mr. Robert D. Kohn.

Southern California Chapter — Palmer Sabin, Chapter Secretary:

Of twelve meetings held during the past year, three have been joint meetings with the State Association of Architects. Five have had outside speakers. The remainder have been devoted entirely to professional discussions.

Bill No. 6187, requiring the Treasury Department to employ private architects on all Federal government building projects costing more than $50,000, was indorsed.

Assistance has been rendered to the California State Board of Architectural Examiners in judging state examinations for licenses. A Chapter committee has prepared and submitted to the State Board of syllabus outlining for the information of applicants the subjects which these examinations shall cover.

It is of interest to note that architects of the State of California are cooperating actively as an aid to the State board of Examiners.

Resolution adopted urging the Los Angeles County Supervisors to make a settlement at this time with San Gabriel Canyon mining claim owners, in order that the flood control dam construction program may be carried to completion.

Kansas Chapter — George M. Beal, Chapter Secretary:

Conducted an annual awards of merit competition among architects of Kansas for 1931 which covered residential buildings. Certificate of awards were given to architects of premiated buildings.

Central Illinois Chapter — E. L. Stouffer, Chapter Secretary:

Passed resolutions: "That it is the sentiment of the Central Illinois Chapter of the American Institute of Architects that indorsement of the Architects' Small House Service Bureau by the American Institute of Architects should be withdrawn until the Architects' Small House Service Bureau exhibits further evidence of its desirability."

Appointed a committee to consider preparation

of a leaflet to be sent to school boards on the general subject of "How to Select an Architect."

Denounced violations of the architectural practice laws, particularly by lumber companies.

Detroit Chapter — Herbert G. Wenzell, Chapter Secretary:

Conducted Honor Awards Competition for most successful architecture of year in building type classes which received thirty-five pages of publicity in local newspapers.

Articles on domestic architecture were prepared by members of the Chapter and appeared as a series of eight interviews in "The Detroit News."

Lectures were given with lantern slides illustrating and discussing the Detroit River Front Development.

A Building Congress has been organized and is functioning with a member of the Detroit Chapter as president.

Sponsored the Greene Bill now in Congress for returning Federal building design to private architects.

Architects' weekly luncheon with discussion of immediate problems of concern to Chapter architects or Michigan Society of Architects' affairs.

Hawaii Chapter (Honolulu, T. H.) — Herbert Cayton, Chapter Secretary:

Holds regular monthly meetings usually as a luncheon meeting.

Has undertaken a program intended to educate the public to an appreciation of good architecture.

Recently undertook the group design of the new Municipal Building for the City and County of Honolulu.

Indiana Society of Architects — Carroll O. Beeson, Secretary:

Adopted a resolution at their meeting on April 25, 1932, as follows: "The Architects' Small House Service Bureau as now constituted and functioning works a distinct hardship on the small architect's office, and we feel that a revision of the policies of this Bureau is necessary before it can hope to have the aproval and indorsement of the Indiana Society of Architects."

Westchester County Society of Architects — Laurence M. Loeb, Secretary:

Holds meetings once a month for discussion of items of local and general architectural interest.

Consideration given to a uniform Building Code for Westchester County. Since standards vary greatly, the practice of architecture is hampered. It is proposed that a special committee be named to initiate and develop the idea of a uniform building code and a method of sharing the expense of making the code by the towns that use it. This code would be definite and complete as far as new

Warren

GROUP OF HONOLULU ARCHITECTS

Reading from left to right: Ralph A. Fishbourne, Raymond L. Morris, William C. Furer, W. Mark Potter, Hart Wood, Marcus C. Lester, Herbert C. Cayton, C. W. Dickey and Guy N. Rothwell. In the rear is the new Municipal Building for the city and county of Honolulu.

materials and processes are concerned and should be kept up to date by care of a permanent committee.

The Gargoyle Club of Saint Paul—William J. Witherspoon, Secretary:

The Gargoyle Club of Saint Paul was founded in 1910 by a group of Saint Paul architects and draftsmen. In 1913 the organization was incorporated and since that time has included in its membership most of the practicing architects and draftsmen of the city. The Club purchased a chapel designed by Cass Gilbert and occupied the building as a clubhouse for several years. The building is entirely free from encumbrances and is now rented. The income from this property makes the club self-supporting and makes possible activities such as the annual exhibition.

Wright Studios

EXHIBITION ROOM OF THE GARGOYLE CLUB
ST. PAUL, MINNESOTA

THE EARLY HISTORY OF BLUEPRINTING

A visit to a modern blueprinting establishment in which elaborate machines continuously print the tracings which are fed into them, delivering a blueprint a few moments after the tracing is received, does not indicate the humble origin of blueprinting.

In 1879 Silliman and Farnsworth of New York City were engaged as architects for the Chemical Laboratory Building of Vassar College. This building had been donated to the college by the sons of Matthew Vassar, founder of Vassar College. Silliman and Farnsworth had been selected for this work because Mr. Silliman was also a chemist and familiar with the laboratory requirements.

Mr. Silliman brought from New York City three blueprints of the proposed laboratory building. They were a sensation in Poughkeepsie, N. Y., and well they might, as they were the first blueprints ever produced.

Prior to 1879 copies of original plans had been made by tracing laboriously each set on tracing cloth. A fellow member of a chemical society in which Mr. Silliman was active discovered the formula for the blueprinting chemicals. No patents were obtained. Silliman and Farnsworth tried out the new formula at their first opportunity and brought the blueprints to Poughkeepsie.

Blueprinting in those early days could hardly be called a fine art. The instructions which accompanied the formula stated that the chemical solution should be spread on the paper evenly with a sponge in a dark room. In applying this solution the blueprinter's hands were dyed as blue as Sis Hopkin's hair ribbon. In the winter time his troubles were worse. In making a blueprint the tracing and the prepared paper were placed in a frame exposed to the sunlight. After exposure the blueprint was washed in water and hung up to dry. The alternate washing and printing in cold water chapped the hands of the blueprinter so that great cracks appeared in his skin. To the aspirant for architectural fame and fortune hands which were blue and cracked were merely an incident in one's career.

J. Norman Jensen

A FRENCH VIEW OF MODERN ARCHITECTURE

To the Editor:

It would be absurd to say that modern architecture was born through the whims and tastes of a few original-minded architects. Not at all—it comes strictly from the new necessities of our civilization of today, and these modern architects took up the problems each one in his own way.

Today, in the century of the automobile and airplane, by which distance is practically eliminated, new conceptions of political and social problems are created, resulting in a total evolution in the art of building by the rational use of new materials. Could architecture remain in the old classical forms and keep on incorrectly copying ancient monuments? But, considering the general crisis through which we are passing in every branch of life, architecture has not yet taken up its definite form.

This new architecture has brought about the formation of several schools, such as LeCorbusier, Perret, Tony Garnier, and others.

To what extent the principles that have been established (and which are followed by most of our young architects) may be right or wrong can only be judged by time.

Referring to the Ecole des Beaux-Arts, our ideas on *moderne architecture* are absolutely contrary to those taught in that school; it has not taken the least initiative to change its old-fashioned academic principles, and if its teaching continues as it is now I believe it is destined to perish.

Ch. Bougatsos, Architect—Paris

South Side

Gottscho

North Side in Full Reflection

VETERANS MEMORIAL BRIDGE AT ROCHESTER, NEW YORK
GEHRON AND ROSS, ARCHITECTS

VETERANS MEMORIAL BRIDGE AT ROCHESTER

GEHRON AND ROSS, ARCHITECTS

By ERNEST BORN, Architect

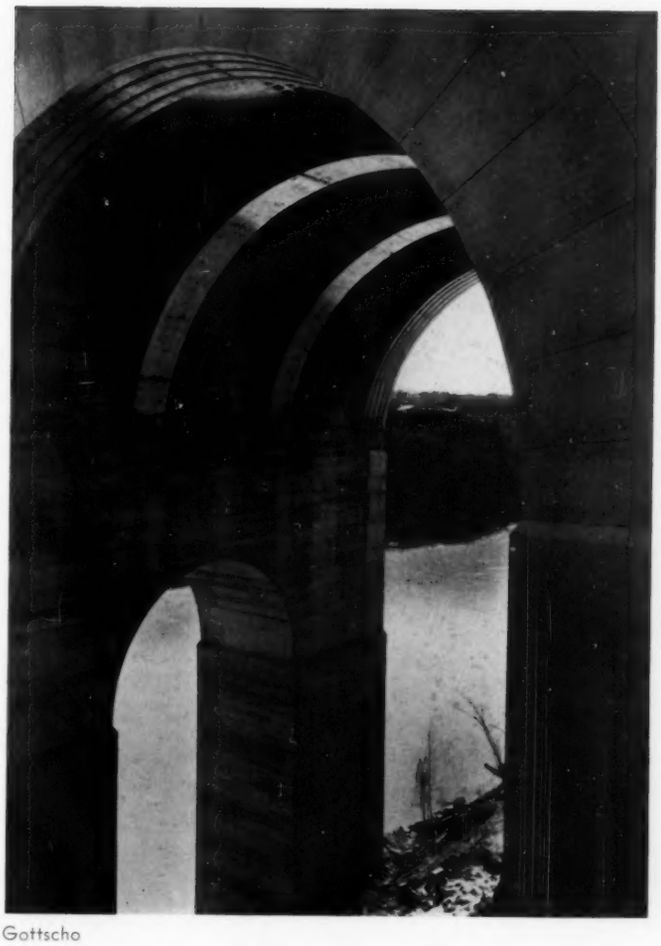
Modern architecture is dependent on modern materials. Economy, not merely in initial cost but also in upkeep and operation, is the criterion. Glass, steel, new metals, compositions, all have come to play an indispensable part in our present method of construction. Granite, in the form of thin slabs or plates, also is taking its place as a modern material.

The new Rochester Bridge is a concrete span across the 1,000-foot chasm of the Genessee River. The great arch measures 300 feet in diameter, the roadway 175 feet from the water. It was designed to be incased in stone against the action of snow and ice and scorching sun. Granite was selected.

The problem was to produce a bridge of monumental character, compatible with moderate expense and low maintenance. Rochester is a city of rigorous winters, where exposed concrete has not yet been proved utterly free from the disintegrating effect of extreme changes in temperature. A stone casing was determined upon, and the utmost simplicity in design and treatment was sought. The architects scrapped all traditional ideas of scale with respect to stonework and set out to detail the granite casing in the most straightforward way in which it could be produced from the quarry and the machines. All moldings and other costly architectural features were eliminated from the design, thus leaving little except the pure form of the bridge.

A study of quarry conditions showed the economy of using slabs of the largest dimensions, and as thin as possible, which could be readily produced. A thickness of four inches was found to be a practical minimum for a stone twelve feet long and five or six feet high. Since the run from the quarry varies in size of blocks, it was found desirable to use slabs of different sizes, grading from large at the bottom of the piers to small at the parapet. Some of the largest stones were used for the ringstones of the main arch. To have used slabs or plates of uniform height or length would have been wasteful.

All slabs were doweled into each other on four sides. These dowels in turn were anchored back into the main reinforcing steel of the arch ring or wall. To obtain a perfect bond with the concrete structure, the slabs were alternated from four to eight inches in thickness, both horizontally and vertically. Concrete was poured as each tier of granite was erected. The slabs thus acted as one side of the form and were completely integrated into the structure by this method of construction. On the returns of the arches and the piers the slabs were twelve inches thick.



Gottscho

Detail of Pier and Arch, North Side of Bridge

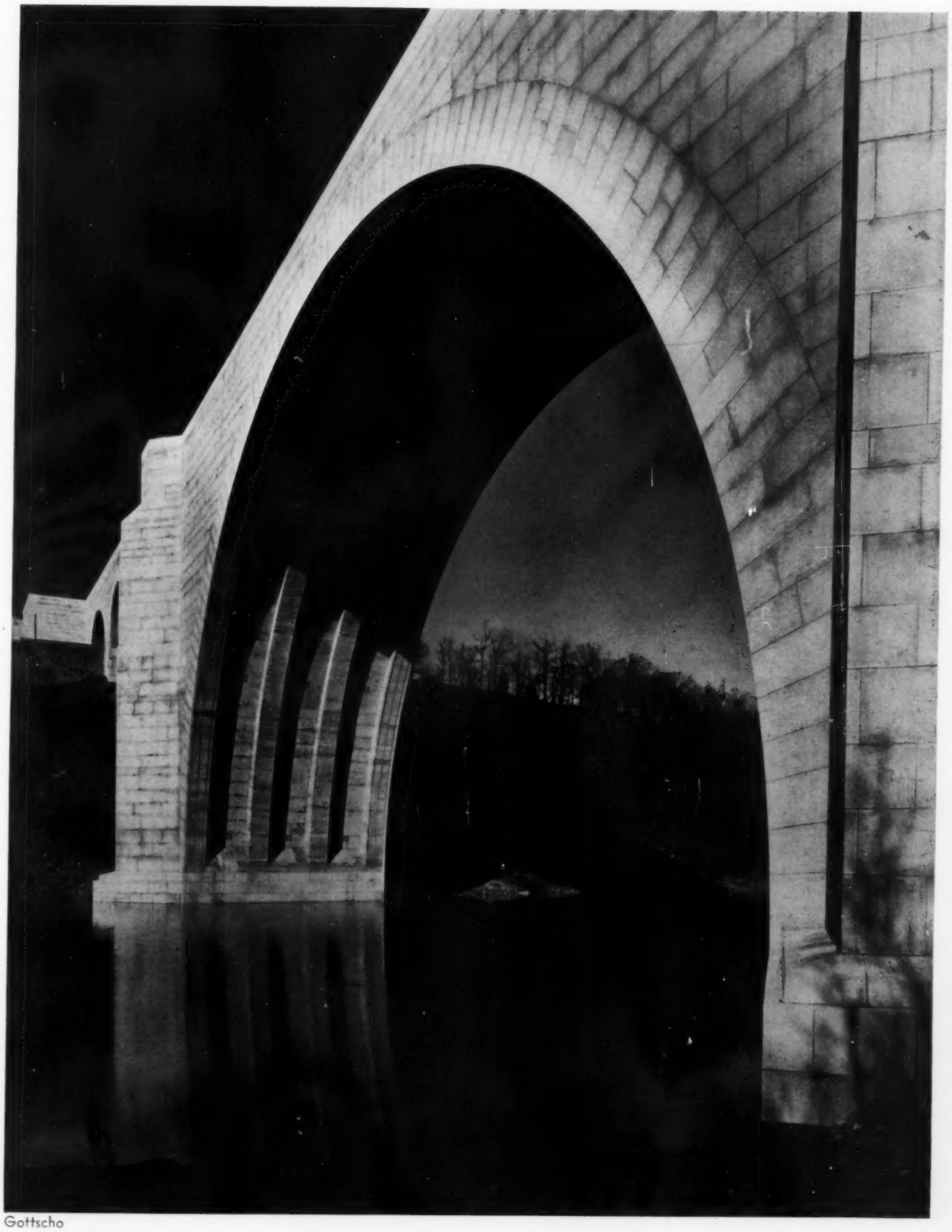
An interesting problem came up in connection with the expansion joints, of which there were six in the main arch wall. Each slab was permitted to extend but eight inches beyond the expansion-joint line of the concrete, and this short projecting section was left undoweled and unbonded, free to move. As the arch ring rises or falls with changes in temperature the expansion joint widens or contracts with a shifting of the stones adjacent to each other on either side of the joint. This shift is comprised not only of a horizontal displacement but also of a vertical angular tilt. The 5/8" joint used throughout was found to be sufficient to take care of this relative shifting.

Practically all industries depend on modern methods of production. Modern granite production depends on three mechanical improvements of very recent date: the super-hardened high-speed steel drill, the automatic feed straight cutting gang-saw, the carborundum coping and molding wheel, together with greatly improved abrasives for polishing and honing and reasonably priced flexible electric power.

Gottscho

South Side from West Bank

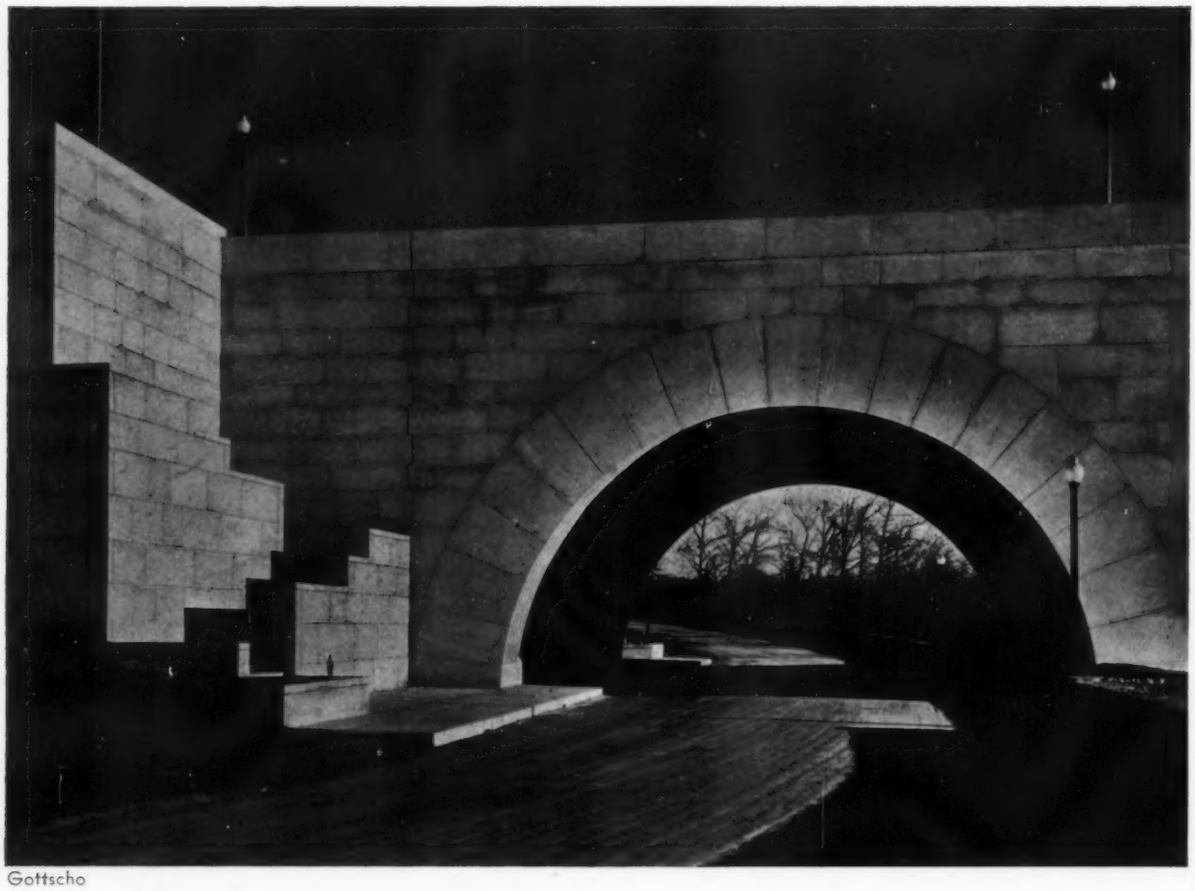
VETERANS MEMORIAL BRIDGE AT ROCHESTER, NEW YORK
GEHRON AND ROSS, ARCHITECTS



Gottscho

Detail of Center Arch from South Side

VETERANS MEMORIAL BRIDGE AT ROCHESTER, NEW YORK
GEHRON AND ROSS, ARCHITECTS



Gottscho

West Arch over Roadway

VETERANS MEMORIAL BRIDGE AT ROCHESTER, NEW YORK

GEHRON AND ROSS, ARCHITECTS

Until a few years ago dynamite was used to detach the granite from the great natural beds in the quarry. This practice was extremely wasteful, and resulted in developing weaknesses in even "sound" stone. The super-hardened steel drill has replaced all that. Hundreds of holes are drilled into the stone within an inch or so of each other, so placed that the internal pressure of the granite comes to the aid of the quarryman and crushes the block free on the line of the drilled holes. Blocks as large as can be handled by a crane are thus actually bored out of the earth with scarcely the loss of a cubic foot of stone.

Once out, the blocks are loaded on a flat car and conveyed to the gang-saw. One of these huge machines can reduce a block of granite twelve feet long and six or seven feet high and as many feet wide into slabs three or four inches thick in a few hours. The sawing is done by erosion—small steel balls are urged back and forth under the saw blades—with no cutting in the ordinary sense. Owing to the high development of the saw blades, each slab comes out an almost true plane surface. The surface produced by the gang-saw was considered so satisfactory in itself that it was used at Rochester.

Granite costs on the Rochester Bridge were:

Per cubic foot:	
F. O. B. Rochester	$4.55
In place	5.18
Per superficial foot:	
F. O. B. Rochester	$3.12
In place	3.55
Total cubic feet	126,104
Total superficial feet	183,944

The relation between the cubic foot costs, which are typical, and the superficial foot costs is most interesting. The average thickness of granite throughout the structure is approximately 8 inches, the 4-inch stones offsetting the 12-inch stones.

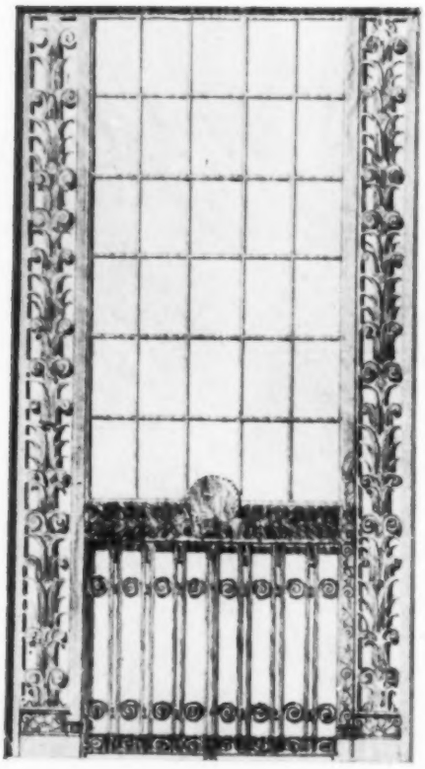
Granite, obviously, can no longer be relegated to the class of luxury materials. The thinner the slab, for a given cube of stone, the greater the superficial area obtainable therefrom. A stone four inches thick involves but one third the transportation costs of a stone twelve inches thick. In many cases transportation costs are found to be more important than quarry costs. The large size of slabs available means minimum jointing, and maximum waterproof surface.

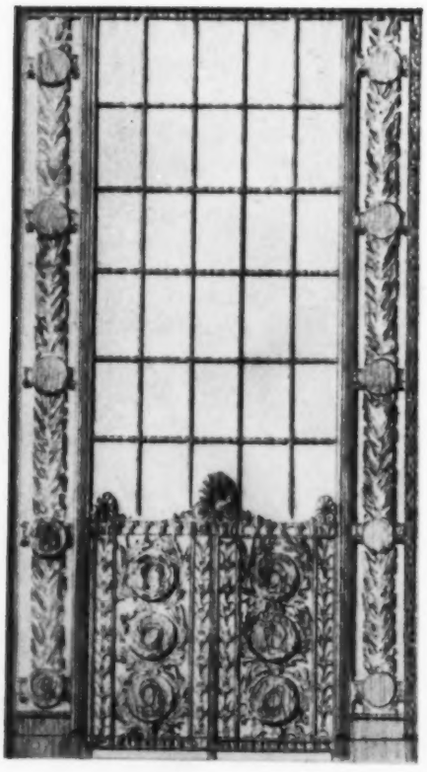
The Rochester Bridge should be recognized as a distinguished achievement in the beginning of a new technique in the use of a fundamental material.

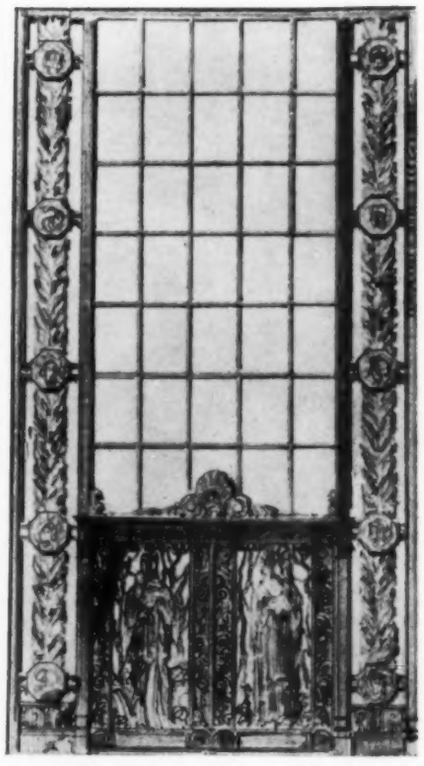
On the following page are other renderings which were made as preliminary studies, leading to the final design shown here.

STUDIES FOR MONUMENTAL ENTRANCE GRILLE

DESIGNED BY FREDERIC C. HIRONS, ARCHITECT







STUDIES FOR MONUMENTAL ENTRANCE GRILLE
DESIGNED BY FREDERIC C. HIRONS, ARCHITECT

TECHNICAL NEWS AND RESEARCH

Worsinger

ABRAHAM AND STRAUS STORE, BROOKLYN — STARRETT AND VAN VLECK, ARCHITECTS

REMODELING AND MODERNIZING BUILDINGS

This article includes an analysis of remodeling procedure, together with detailed information and checklists applicable to restaurants, apartments, art museums, city and country houses, schools, hotels, shops, and stores.

REMODELING PROCEDURE

By THEODORE N. CRANE

The desirability of undertaking modernization at the present time naturally depends on the sales value or earning capacity of the remodeled structures. Although it is only too apparent that in many localities we have at present an over-supply of rentable space in almost all types of commercial buildings, there is a distinct need for remodeling work which will increase the earning capacity of the investment either through modernization, without changing the type of occupancy, or by complete revamping of the structure to bring the property into a more favored class of occupancy.

Broadly speaking, most alterations that are now under way or contemplated in the near future fall into one of two categories. On the one hand, we have the possibility of improving the appearance and conveniences of hotels and apartments or the modernization of stores and restaurants. On the other hand, there is a broad field of work involving the more or less complete reconstruction of antiquated residences and occasionally of commercial buildings for the purpose of transforming the property into attractive, modern multi-family dwellings.

Many organizations throughout the country are directing very serious effort to an analysis of alteration problems. There is a general feeling that it will be many years before material prices are as low or the efficiency of the building trades as high as at the present time. This is a very important factor in the cost of present-day construction. But if an architect is to induce his prospect to undertake alteration work, these general facts must be reduced to specific estimates of cost against which the increased earning capacity of the property must be checked.

In the case of alteration work, the architect cannot use square-foot or cubic-foot prices for the purpose of making preliminary estimates of cost. Fairly complete drawings must be prepared before definite estimates can be obtained, but experience in the remodeling of old buildings, supplemented by careful procedure in the analysis of the problem, will greatly assist in determining approximate figures which will insure that the eventual expenditures will be within the owner's budget.

From the experience of various firms specializing in this work, it appears that an economic study of the client's business or the potential earning capacity of the property in question is the first step. The object of this preliminary investigation is to determine the client's needs, to set up an ideal as it were, which it would be desirable to attain from the viewpoint of improving the investment.

FIRST FLOOR SALES SPACE
ABRAHAM AND STRAUS STORE, BROOKLYN, N. Y.
STARRETT AND VAN VLECK, ARCHITECTS

The next step is generally concerned with the physical character of the property: the stability of walls, the carrying capacity of the structural floors, the condition of the present mechanical installations and the practical limitations of alteration as controlled by the factor of unwarranted expense. A structural survey of this nature should be made, with considerable detail, to provide the designer with a thorough description of existing conditions in order that he may be able to decide what portions of the building must be condemned and what elements may be incorporated in the new plans.

Both of these studies are preliminary to the actual work of design. With this information at hand the architect can proceed with the preparation of his drawings and specifications illustrating the new arrangement. The problem will then be to accomplish, within the limits set by the old structure and the owner's budget, as many as possible of the changes and improvements outlined in the economic survey.

Architects who have had the most experience in work of this nature, although fully realizing the difficulty of arriving at accurate costs prior to receiving final bids, find that valuable results may be obtained by viewing a large alteration job as comprising a number of individual changes or additions, often more or less unrelated to each other, which can be estimated approximately when viewed as separate operations. Having broken down the work into its component parts and arrived at an approximate cost for each related group of alterations, it is then a simple matter to choose those which the owner will be able to carry out within the limits of his appropriation.

By following a procedure such as outlined above, it will be possible to present the owner with a specific plan of operation with which he can coordinate his present occupancy of the property and estimate with a fair degree of accuracy the additional return to be expected for a definite increase upon his present investment.

ECONOMIC FACTORS IN MODERNIZING RESTAURANTS

By LOUIS O. ROHLAND: F. P. Platt and Brother, Architects

The recent downward trend of the business cycle has brought to all phases of building activity an aspect quite different from that existing when everything was upgrade. The effect on the restaurant, as on other specialized activities, has been felt in an ever-widening circle. Bankruptcies have brought new faces into the picture—banks, mortgage companies, receivers, building owners find themselves owning restaurants, and facing the necessity of analyzing reasons for failures and putting into effect the best remedies to save their investment. Competition is keener. New buildings and restaurants change the neighborhood tone, and the older establishments are becoming more keenly aware of the need of meeting the situation. Considering the basic nature of the field, restaurant patronage has probably been reduced less than in many other businesses. It is changing, however, and many low-priced restaurants are drawing patronage from the higher-priced establishments. The customer is buying more selectively, and consequently the management is scrutinizing more closely every expenditure.

Remodeling vs. New Buildings

The alternative between remodeling and erecting a new building is a matter of economics, and the architect should be a vital factor in assisting the client to arrive at a decision. Generally speaking, a restaurant must be planned to occupy all or a major part of the space to justify erecting a new building, or the owners will find themselves in the real estate business (for which few are qualified). Hence, a small restaurant should contemplate a new building only on low-priced ground or in such a neighborhood as a new suburban development. The larger restaurant, with more ample resources and with space requirements less easily found in rentable space, must analyze thoroughly the location from every angle. The quality, quantity and continuity of the desired patronage must be available and reasonably assured for a sufficient time to warrant the investment. Even when the set-up shows a new building is feasible, it is necessary to make sure that an existing building in the neighborhood is not available at a cheaper outlay; such a site always carries the threat of a competitor operating on more favorable terms.

Scope of Remodeling

For restaurant occupancy the remodeling may be divided roughly into four classifications:

First, when space is rented in a building under construction. Here, the architect's job, although in a building still largely on paper, is none the less difficult, since it is fraught with negotiations involving all parties to the building operation and their varied interests. It is essential that the architect assist his client in the negotiations preparatory to closing the lease. Adjustments of credits and extras can be made then with a larger degree of mutual satisfaction. The architect can avoid the economic waste of scrapping unsuitable material, assure adequate provision in all services, avoid structural limitations which could not later be remedied, and speed up the date of installation by correlating his activities wtih the building operation.

Second, where the space leased is in an existing building. Here again the architect's study and advice is required before the contract is closed. Study may uncover insurmountable obstacles and avoid unfortunate commitments, or uncover facts that would obtain concessions in the lease terms. An accurate analysis should be made of the effect of obstacles to be removed, depreciation to be repaired, and salvagable material to be reused on the proposed installation cost. Frequently a fair proportion of the finish and building equipment of premises previously occupied by a business of a different nature can be reused; for example, a recent restaurant installation is in quarters previously occupied by a bank.

Third, where the space was occupied previously by another restaurant. This is specially stressed since it is a dangerous pitfall for the less experienced restaurant operator. Incorrect assumptions as to the salvage value of the first installation have frequently increased appreciably the installation cost budgetted by the owner. The large restaurants, particularly those operating a chain of units, seldom find conditions exactly suitable, since a feature of their business is individualized uniformity of operation and character. The reason for the failure of the earlier occupant must be analyzed, as sometimes the fault lies in the equipment or arrangement. Small restaurants, such as tea rooms, can more frequently use former installations, as many such failures are due to poor management, bad catering, or insufficient scrutiny of food costs. There have been many instances of a new management making a success of a previous failure with little physical change beyond a new name.

Lastly, where the existing restaurant has been gradually losing patronage because of being out of date. A restaurant like any building starts its obsolescence the day it is opened. Science, human tastes and building experiences are constantly developing new ideas. New competition seizes every opportunity for more efficient operation. There is an intermediate stage in the life of every restaurant when in order to hold its own it must be rejuvenated. A new note, not necessarily a complete change, introduced periodically will guard against the appearance of staleness. The architect can do a great deal as an adviser to his client in this

respect. It must be impressed on the owner that this does not necessarily mean a large expenditure. The fear that remodeling will disrupt business routine frequently holds an owner from making needed changes. The architect must show how remodeling can be planned and executed with minimum disturbance.

Principles of Remodeling

The principles governing the extent and nature of restaurant remodeling are identical with those governing a new installation. The criterion of a successful restaurant will always be *good* food, offered at *proper* prices in *suitable* surroundings—all three factors gauged to meet the real requirements of the desired patronage. Too high a level can be as disastrous as one too low. Obviously, the first two principles are of primary importance, since, no matter how inviting the surroundings, patrons will not accept inferior food or too high prices. Given the proper scale in these items, in face of competition, the patrons' comfort will swing the balance.

The architect's work can materially affect food prices. Reduction of overhead costs can be accomplished by eliminating waste space, and by increasing accommodations through proper seating.

Operating costs can be cut by proper food handling studies, and by the adoption of improvements in equipment. Maintenance costs can be cut by proper selection and use of materials. The service the architect can and should render in solving these problems is sometimes lost sight of in the effort to attain the maximum drawing power through eye and comfort appeal.

In the application of these principles a renovation differs from a new building. In the latter case the many elements are all within the architect's control and conception, and subject to reciprocal rearrangement, but in remodeling there is no such flexibility and everything must be adjusted to the fixed conditions. It is well, however, to study from all angles every condition presumed to be fixed, as frequently troublesome conditions have been tolerated for years on the mistaken assumption that they were insurmountable.

Remodeling Suggestions

In advising the restaurant owner regarding possible remodeling, the architect should guard against too high an aim, particularly in medium- or low-priced restaurants. The owner requires more than ever a wise expenditure of his money. An over-expensive or unduly luxurious appearance has frequently kept some desired patronage away. Discuss fully the pros and cons of every debatable point with the owner, and understand fully his aims before making recommendations. In designing a new building, available unit cost data have simplified the making of preliminary estimates, and reasonable accuracy is commonly expected. The inherent difficulty in similarly estimating remodeling costs should not be an obstacle toward making a sound preliminary estimate. The importance of this step cannot be over-emphasized, and the smaller the job, the more vital it becomes, as the small owner's resources are usually limited. Contingencies should not be overlooked, and allowances made. The time consumed in this step will always be compensated by the avoidance of later changes.

Restaurant features susceptible to remodeling are too numerous to list, but a few major points of attack may be mentioned. First, the main function of the exterior is drawing power by eye appeal. In remodeling a building or space previously used for different occupancy, the exterior treatment holds probably the greatest opportunity for visible change, and probably the greatest difficulty, if the cost appropriation is limited. Certainly it is the part of the restaurant seen by most people. A change of the exterior, if properly handled, is a wise investment. Primarily the façade must tell the prospective patron the restaurant's story. Except for the more exclusive restaurants, a show window is essential, to permit the passer-by to glance in and quickly determine the type of service offered. If, for example, counter service and table service are provided, both should be visible from the street. The entrances should be commodious; vestibules are preferred. For certain types, particularly where space is in the basement, show cases are desirable. Signs and illumination should be carefully studied as to location and design, since they can destroy an otherwise effective exterior.

In the interior the eye appeal rests with the decorative treatment and furnishings. There is scarcely an antiquated interior that is not susceptible to modernization within economic limits. But the proper appeal depends on the analysis of the class of patrons and an understanding of preferences. In selecting materials, consider the amount and quality of the maintenance resources that will be available.

Of the comfort factors the item of lighting is probably the one most uniformly desired in all types of restaurants. Ventilation and air conditioning are open in degree to a great variety depending on the class of the restaurant, but even the cheapest should insure freedom from odors. Freedom from noise and unobtrusiveness of service have the largest variation in the demands of the various types, but great reduction in noise can be accomplished at small expense in even the cheapest types. In the public areas the greatest source of increased revenue lies in the seating arrangement and food dispensing. Frequently combinations of two types of service will attract the maximum patronage. Often removal of building obstructions or rearrangement of space will eliminate wastage and increase seating.

Patrons' toilets in old buildings are usually in need of radical renovation.

In the work areas wastes of material, labor and time are points to attack. Rearrangement of work

areas in old restaurants has often eliminated inefficiency. The mechanical work and equipment are fertile fields for economical improvements.

Building Surveys

In remodeling work a proper survey to assemble accurate and comprehensive data regarding the building is essential, if economy of cost and time is to be effected. In other words, the equivalent of a set of working drawings and specifications of the work to be altered must be created before remodeling drawings can be started. The survey represents a considerable part of the architect's expense and must be made efficiently if the job is to be successful. It is inopportune to treat fully of the lessons learned from experiences in making surveys, but a few recommendations may not be amiss:

(1) Maintain a manual or checking list to record conclusions from past experience for the future guidance of less experienced men.

(2) Investigate every possible source to obtain plans and specifications of the original building and subsequent alterations. Where data must be copied, consider photostating whenever job is large. Such data must not be used without full verification at the building.

(3) Always make an advance preliminary survey. Skill in observation will enable the surveyor to register major features in minimum time.

(4) The surveyor must consider carefully the program and studies developed from the preliminary survey, and determine the scope of the final survey and the amount of detailed information required in each part of the building. No variation in degree of accuracy should be contemplated. An efficient survey should present all the necessary data, and as little else as possible. When in doubt as to the need for certain data, record the facts, as it is cheaper to do so than to make a return trip.

(5) After analyzing the program the surveyor can decide what assistance he needs. One assistant is always essential for economy; on large surveys two or three may be advisable. Before starting out, explain clearly to assistants the methods to be followed throughout, and avoid the need of subsequent instructions and the possibility of misunderstandings.

(6) Have a checking list of all paraphernalia used on surveys, such as duplicate tapes and rules, plumb bob, flashlights, extension cords, hammer, chisel and awl, cross-section paper, etc. Check over this list before starting, and take along everything the circumstances warrant.

(7) When the survey extends over several days, it should be interrupted at intervals to plot the data to date in the office, or at the building when conditions permit. This will check on mistakes and avoid later return visits.

(8) Adopt a uniform method of recording data and dimensions which should be understood throughout the office. Record data clearly so as to be usable by any one. A series of contiguous measurements should be made from a single point with a continuous tape in order to avoid cumulative errors.

(9) Supplement the survey with ample photographs of both interior and exterior.

(10) Survey according to a logical approach planned in advance. Finish each room, floor, etc., before starting the next.

(11) Whenever in slightest doubt verify angles

Underwood and Underwood

Rothschild

F. P. PLATT AND BROTHER, ARCHITECTS

At the time the Hotel Lorraine, New York City, was remodeled into an office building, the old dining room, shown above, seemed easily adaptable to restaurant occupancy. Preliminary investigation showed not only the salvage value to be nil, but that floors, walls, and ceilings would have to be stripped to the bare structure, that the plumbing, heating, and electric systems were inadequate and would have to be replaced entirely, and that hotel piping concealed behind furred ceilings and in service rooms would have to be removed and rerouted at considerable expense, before the restaurant shown here could become a reality.

and straightness of walls by triangulating from two points or by offset measurements. Watch out for change in exterior wall thickness, hidden by abutting partitions or at floor levels. These can frequently be noted at stair wells.

(12) When cutting is required, be sure the building owner's permission has been obtained. If using outside labor, fix definitely the location of cutting. Always expose conditions rather than guess at important items.

(13) Interview the superintendent of the building being surveyed, and adjacent buildings if necessary, for useful information, particularly as to the performance of the mechanical systems.

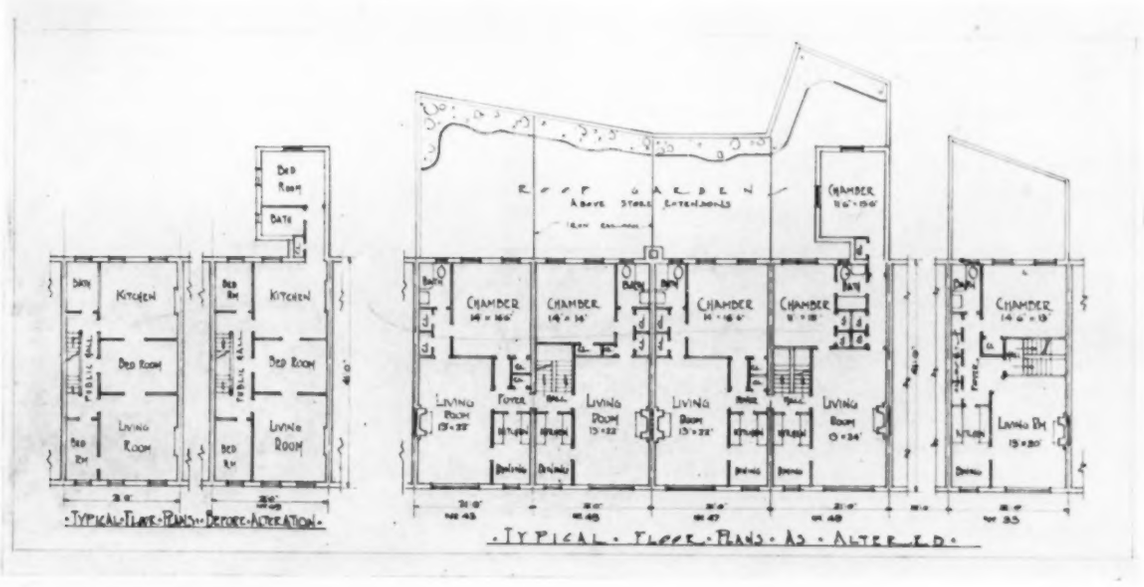
(14) Schedule sheets, with ample space for comments, are an aid in recording materials and finish.

(15) Investigate thoroughly all evidences of depreciation. Check all windows, doors, and other moving parts or points of weather exposure. Watch top-floor ceiling for evidence of roof leaks.

(16) Check for obsolescence in such items as the mechanical installations, hardware, etc.

(17) Maintain a checking list, subdivided to record all the items usually met in cellars, ground floors, typical floors, top floors, penthouses, roof, exteriors, typical rooms, special rooms. Have a copy of the checking list at the building and use it before you leave each roof or floor.

(18) Finally remember that surveying a building is not always a clean job. The office force will appreciate the thoughtfulness of an advance notice of a job of surveying which will permit them to have old clothes or overalls at hand.



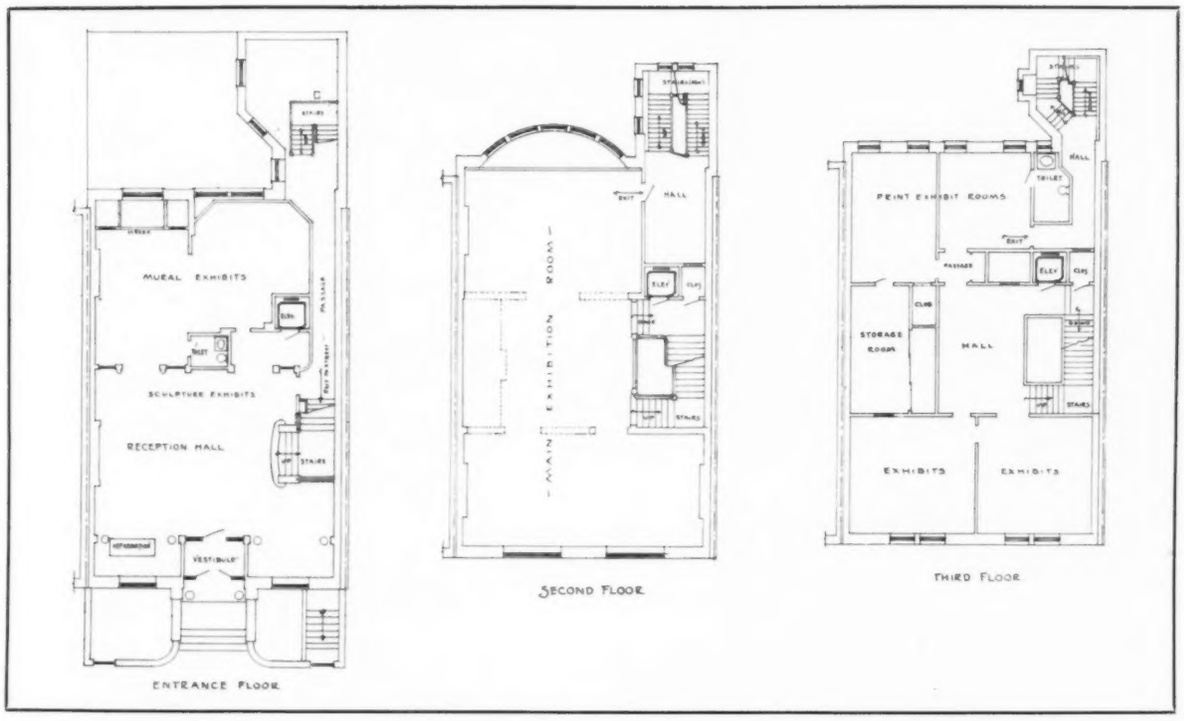
Rothschild

A REMODELED APARTMENT

GREENWICH AVENUE, NEW YORK CITY
MANOUG EXERJIAN, ARCHITECT

COST OF ALTERATION:

Shoring, bridging	$ 1,100
Rubbish removal and demolishing	2,900
Masonry	7,500
Ironwork	4,200
Carpentry	10,750
Lathing and plastering	4,350
Tile work	3,450
Electrical work, fixtures and 'phones	2,870
Plumbing and gas fitting	7,850
Heating	3,850
Roofing and sheet metal work	1,450
Kitchen equipment	5,850
Miscellaneous items	1,750
	$57,870



CHANGING A RESIDENCE INTO AN ART MUSEUM

By WILLIAM RICE PEARSALL, Consulting Architect

This large residence at 11 West 53rd Street, New York City, has been remodeled to form a permanent home for the Museum of Modern Art. The building has a frontage of 43 feet and a depth of 65 feet. It was originally well planned and is of fire-resistant construction. A building of this type can be adapted easily to exhibition purposes. As large private residences can be purchased in many cities at a fraction of their original cost, there are probably many other instances where similar changes could be made advantageously.

The spaciousness of the first-floor apartments, entered through large bronze doors, is well suited to the exhibits of sculpture placed in the reception hall. Murals are on the wide wall surfaces extending into the large rear room which was formerly used as a dining room. The mantels have been removed and a screen added in front of the rear-yard windows to give additional wall space. The screen is arranged with openings at the top and bottom for ventilation and with grilles for heat transmission from radiators concealed in the rear.

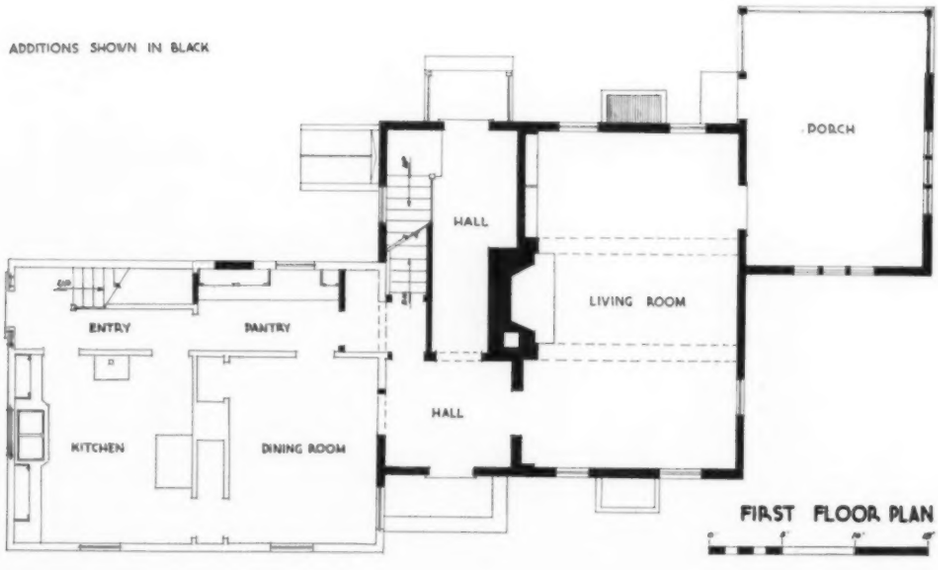
An automatic elevator is conveniently located in a lobby adjacent to the reception hall and gives access to the main stair landings on each of the floors above. The information desk is located in an alcove on the first floor. The second story has been made into one large room by removing the partitions and an organ which the former owner had installed. The original decoration on the ceilings has been either eliminated or painted to form a background for the exhibits. This large room is particularly suited to special exhibits and group meetings. The mantels here have also been removed and a screen constructed across the bay window similar to the one on the first floor.

On the third and fourth stories very few changes have been made. Where closet space was not needed, the door openings were closed and concealed doors were installed to give access to former bathroom spaces which are now used for storage. The removal of all mantels changed considerably the character of the rooms which now provide ample space for the more intimate exhibits.

The fifth-story arrangement was left practically unchanged, the rooms being utilized for museum management offices. An information and telephone desk is located in the angle of the hall adjoining the elevator. The penthouse on the floor above, which was formerly a sun room, provides a quiet place for board meetings or for study and reading. It is conveniently reached by a wide staircase leading directly from the office floor hall. Toilets have been left on the various floors for the use of the public and employees.

The original wide, open-well monumental stairway has been retained to provide convenient access to exhibits on the various floors and to maintain the airy spaciousness of the exhibit rooms. This was made possible by building a new rear stairway of fireproof construction with exit doors on each floor and a separate passage leading under the reception hall to a street entrance, which provides a safe means of exit as required by law.

Haskell



REMODELED HOUSE OF H. RUSSELL CORT
FRAMINGHAM CENTER, MASSACHUSETTS
GEORGE F. MARLOWE, ARCHITECT

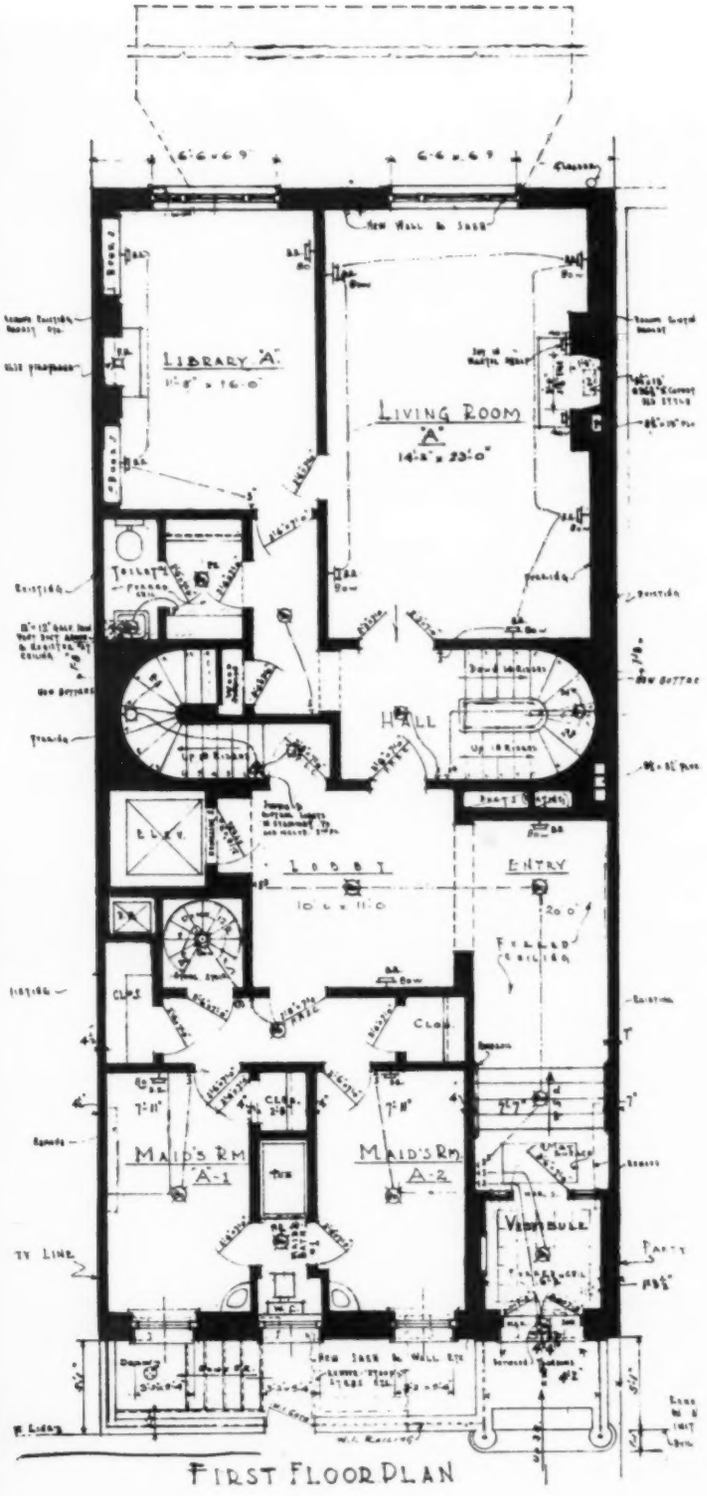
FIRST FLOOR PLAN

SECOND FLOOR PLAN

REMODELED HOUSE OF F. E. BARRETT
FRAMINGHAM CENTER, MASSACHUSETTS
GEORGE F. MARLOWE, ARCHITECT

View before alteration.

View after alteration.



The upper three floors are the owner's apartment suite. The lower three floors are rented, the revenue from which is sufficient to defray all carrying charges.

REMODELED HOUSE IN NEW YORK CITY
L. BANCEL LA FARGE, ARCHITECT—RODGERS AND POOR, ASSOCIATED ARCHITECTS

A TENEMENT MODERNIZED AS A 2-FAMILY CITY HOUSE

By L. BANCEL LA FARGE, Architect

RODGERS AND POOR, Associated Architects

The almost complete reconstruction of an old tenement house at 216 East 70th Street, New York City, illustrates a type of remodeling work which has been found satisfactory both in New York and in other large cities. This building, originally designed for eight families, has been renovated to serve as a 2-family city residence. The property was obtained by the owner of a country estate who desired a city dwelling for the winter months, but disliked the idea of having either a complete house of a suite in an apartment hotel. After considerable search, this site was acquired in a somewhat run down but steadily improving neighborhood.

Façade

Specifications called for chipping off all trim, ignoring the joints on the old brownstone front and applying a new facing of imitation brownstone stucco. Brownstone stucco was selected because it required no finish coat of paint and the natural color, not showing the city dirt and grime, would involve no maintenance costs or repainting.

All vertical joints were omitted in the new stucco surface. Horizontal joints were specified in order to permit, over small areas, the replacing of defective stucco if such became necessary due to lack of watertightness or other deficiencies in the original structure. A saving in cost was effected by replacing the conventional window trim with a ⅜"countersinkage, 3" wide, around each window opening. The sills are also of stucco, projecting ¾". Another saving was found by substituting for the cornice a 14" band with ornamental stars cast in brownstone stucco.

The building was then altered sufficiently to obtain private residential quarters for the owner as well as a second suite of rooms intended for rental and as a mainstay for the carrying charges of the investment. The upper three floors are reserved for the owner and the lower three floors for the lessee. The rental is relatively low but is sufficient to carry taxes and maintenance charges and to yield a slight profit.

Structural Changes

The original structure, erected in the 70's, was reconditioned almost entirely. The dilapidated state of the interior necessitated releveling the floor beams, removing almost all partitions and chimney stacks, and refacing the masonry on the street façade. A 4-story projection in the rear of the building was eliminated entirely in order to obtain increased light and airiness for the remaining rooms. Despite the number of changes a saving of 15-20 per cent. was effected by retaining the structural shell rather than building anew.

Interior Changes

On the first floor is a lobby for the use of both tenant and owner. One stair well runs the full height of the building and serves the owner; the other stair well serves the tenant of the lower three floors, thus giving each apartment complete privacy. A self-operating elevator is used by both the owner and the tenant.

The living quarters of the lower apartment are on the first floor. On the ground floor are the kitchen and service facilities and a dining room opening on a garden terrace in the rear of the building. Bedrooms are on the second floor. In the upper apartment, reserved for the owner, the prime planning consideration was to have sunlight in the living quarters. Consequently, bedrooms are on the third floor, entertainment and living quarters on the fourth floor, and the sun room and roof terraces on the fifth floor.

All rooms were specified for plain trim and white gypsum plaster finish. The walls are painted or papered. The floors are of strip oak except in the basement where asphalt tile is used to overcome dampness. The bathrooms are finished in gypsum plaster with a dado of Keene's cement. A 1" x ¼" fillet of Keene's cement separates the dado from the white plaster above. Floors are surfaced with linoleum. In the kitchens the plaster walls are finished with enamel paint.

The building originally had four chimney stacks. These were ripped out and only one rebuilt in addition to a new boiler chimney. A single vertical stack now serves a wood-burning fireplace in the basement dining room and others in the first-floor living room, the second- and third-floor master bedrooms and the fourth-floor living room. The flue from the fireplace in the sun room on the fifth floor is contained in the boiler stack.

Throughout these extensive interior changes, one of the main purposes was the reduction of maintenance cost. Changes in room arrangement and the selection of materials were largely determined by this objective. Although each apartment provides space for servants, the building itself requires only the part-time services of one charman for cleaning the front sidewalks, the entrance lobby and the basement service rooms.

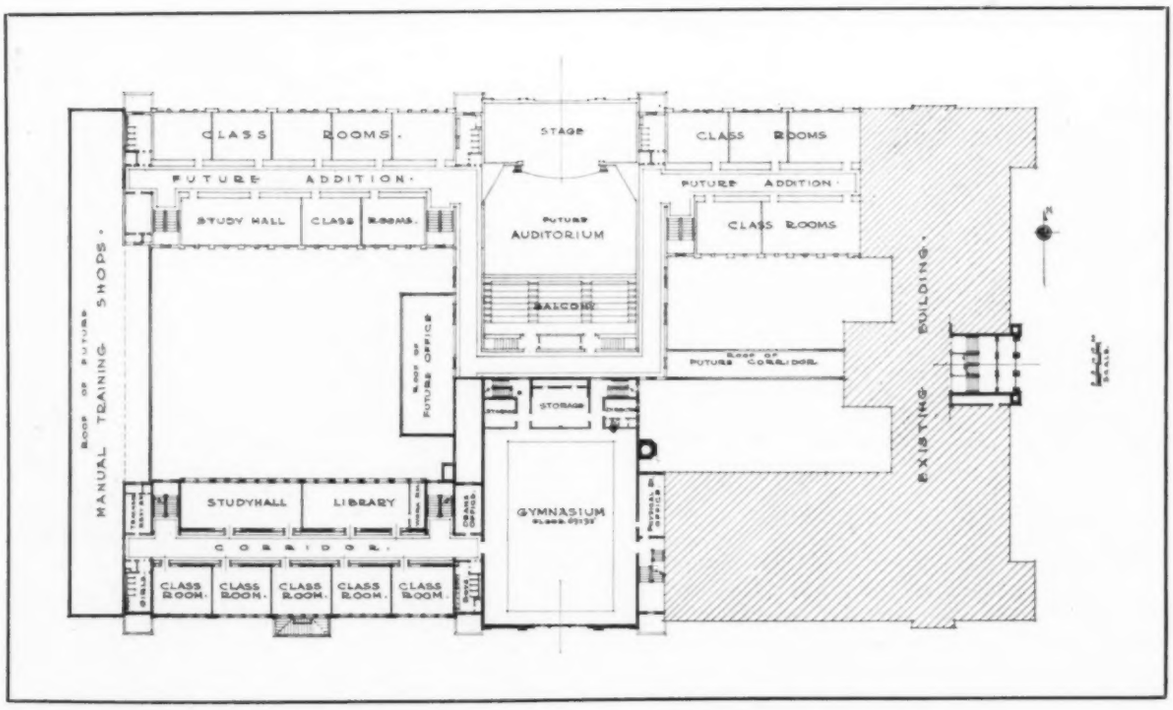
REMODELED SCHOOL

ALBERT LEA, MINN., HIGH SCHOOL
HAMILTON, FELLOWS AND NEDVED,
ARCHITECTS
LEROY GAARDER, ASSOCIATED

The new buildings were designed to provide for 1600 pupils. They are of brick and concrete construction. The entire ceiling of the gymnasium is treated with an acoustical material.

The new senior high school unit and the new stair hall at the west end of the old building cost 24.5 cents per cubic foot.

The gymnasium unit cost 29.8 cents per cubic foot, which includes the cost of the new boiler plant contained in this gymnasium wing and the new 120-foot brick stack. The heating plant in the old building was abandoned and the new heating plant supplies both the old and the new buildings.



MAIN FLOOR PLAN SHOWING ALTERATIONS AND FUTURE ADDITIONS

Fuller

View Before Reconstruction

View After Alteration

The cost of the alterations to the old building was $37,652. This includes changes in plumbing, and in heating and wiring to connect to the new heating plant. The old building was erected in 1910, enveloping a still older structure. The roof covering was wood shingles, which were replaced with slate, with the necessary structural changes to carry this material. In the architects' opinion it would have cost approximately $250.000 to replace this old building.

ALBERT LEA, MINN., HIGH SCHOOL

HAMILTON, FELLOWS AND NEDVED, ARCHITECTS

LEROY GAARDER, ASSOCIATED

A REMODELED HOUSE IN DUTCHESS COUNTY, NEW YORK

By G. FREDERIC PELHAM, Architect

The owner's original intention was to build a small summer cottage on a plot of one hundred and fifty acres on a mountain top and extending for some distance down the southern slope. The high cost of constructing necessary roads made this impossible. Then the tottering structure on the side hill was considered for alteration.

Here is the problem as it was finally submitted to the architect: To provide a comfortable, modern, small country house, consisting of living room, dining space, kitchen, four bedrooms, two baths, and a two-car garage, so arranged as to accommodate a middle-aged couple and two or three week-end guests. The total cost was not to exceed approximately $5,000, this sum to include water and electric supply, disposal works, drives, walks, and the like. This small sum made it essential that as much of the old building be used as possible, with a minimum of labor and new materials.

Available Materials

A dilapidated, decaying, box-like structure, with sagging floor beams, rotting shingles, crumbling masonry, and devoid of piping or wiring. An old well and a small brooklet in the gulley in the rear. A collapsed barn across the road and several old stone walls.

Procedure

A rough sketch and outline specification was submitted to a local contractor. After a survey of the premises this contractor turned in an estimate of $10,000, not including the two-car garage, the grading, walks, or drives. His explanation for this figure was that only the main framework could be utilized, and even this would have to be jacked into position and reinforced. The new second-story windows, and the installation of the plumbing pipes, would necessitate considerable cutting, and the studding and wide plank flooring, when removed to allow for the leveling of the floor beams, could not be utilized again. They were warped and sprung and, as far as could be determined, badly decayed. To all appearances he seemed right.

The architect insisted that some stripping be done and the hidden facts arrived at before giving up hope. An old carpenter, armed with a handjack, an ax and a crowbar, was hired. After a few hours' work things looked decidedly brighter. By applying the jack to the sagging main girder the floors were soon raised to their original level. The old doors now opened and closed for the first time in years. Under the decayed shingles a layer of insulating paper and perfectly preserved sheathing was encountered. The floor beams and roof rafters were for the most part still serviceable. The old lath and plaster, brought down, disclosed rows of sound studding, set plumb and true enough to receive new metal lath immediately. An eighth of an inch scraped off the wide plank flooring brought to light beautifully grained and colored wood. The door and window trim, once rid of the many layers of cracking paint, would suffice with but little renovating.

The well, opened up and cleaned of its rubbish, proved to be deep and wide, with a fine depth of excellent drinking water, and a sizable drainage overflow. An auxiliary concrete catch basin, and a small electric pump would solve the water problem if electricity could be supplied. Investigation disclosed that the electric company would string the wires provided the owner would erect proper poles.

The Solution

It was decided to proceed step by step. Twice a week the architect inspected the operation and laid out the work for the old carpenter and his assistants for the next few days. No rigid rules or laws were insisted on.

In six weeks the entire house, walls and roof had been reshingled. New stock frames and sash had been installed and two new brick porches added. New, inexpensive stock columns had been erected, and the entire interior relathed and plastered. The plumbing had been completed, the baths finished, the masonry pointed up, and the house wired for electricity. In the valley a blacksmith was hammering out hardware to match the old thumb latches and H-L hinges, and the hundred-year-old beams from the barn across the road had been used on the living-room ceiling.

A low picket farm fence was erected across the front of the property and down to the brook in the back. A stone dam and a little excavating

Original House

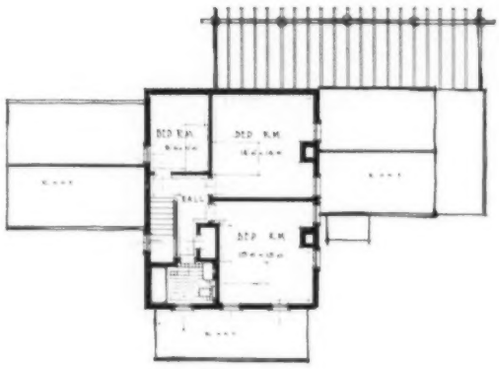
Construction Progress

Completed House After Remodeling

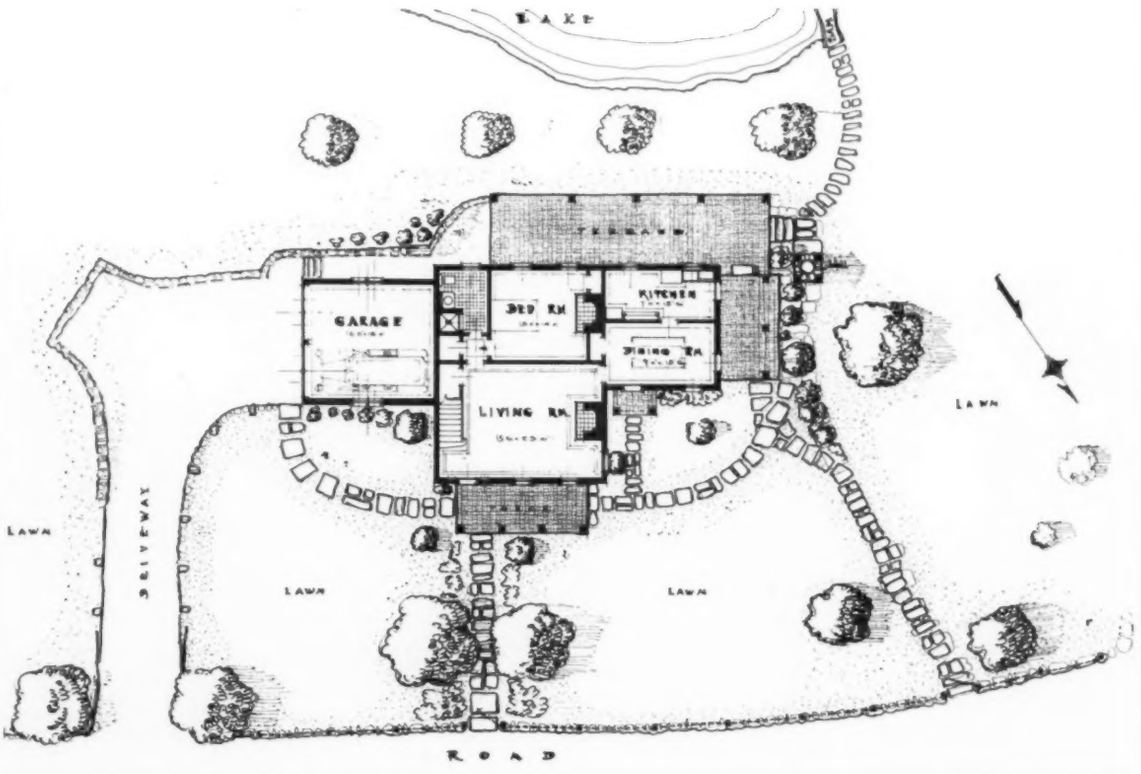
A REMODELED HOUSE IN DUTCHESS COUNTY, NEW YORK

G. FREDERIC PELHAM, ARCHITECT

Floor Plans
Before Remodeling



Second Floor Plan
After Remodeling



A REMODELED HOUSE IN DUTCHESS COUNTY, NEW YORK
G. FREDERIC PELHAM, ARCHITECT

created a charming lake now spotted with water lilies and well stocked with trout. In the rear, overlooking the lake, a rafter-covered brick terrace was provided. The stones from the old walls went into making a rustic well inclosure, and a retaining wall to support the driveway. Ten weeks and the transformation was complete.

The Result

A seven-room house, with two porches, an open brick terrace, and a two-car garage. The house equipped with modern fixtures, including an electric stove and refrigerator, brass plumbing, standing shower, and automatic water heater.

The Cost

Carpentry and materials	$31.00
Masonry and materials	500
Plumbing and materials	800
Painting and decorating	550
Electric wiring and fixtures	300
Total cost	$5,250

SHOW WINDOWS IN ALTERATION WORK

By JOHN F. COMAN, Architect

As the architectural design largely controls the convenience and consequent cost of handling the merchandise, as well as the important subject of proper display, the architect must have complete knowledge of the sales problem and the psychology of the prospective buyer. For example, it is very important at the present time to reduce, as far as possible, the amount of stock kept on hand since styles change rapidly and all firms are doing everything possible to reduce carrying charges.

A department store requires large, fairly deep windows, ranging from 10 to 12 feet in width and from 7 to 8 feet in height; the depth generally varies from 6 to 8 feet, the greater depth being necessary for those in which furniture sets will be displayed. Smaller windows should also be included for individual display or for showing small wares.

In both large and small windows the lighting and backgrounds are of great importance. Large windows should have a top bank of reflectors along the line immediately behind the plate glass, and may have footlights immediately below. In no case should the lights of the window be visible to the spectator and they should be so arranged that a uniform foot candle unit plays over the entire area inside the window but does not leak out through the glass. Several firms have made reflectors with curves especially designed to accomplish this purpose. The architect may now make use of a new type lined with chromium plate, or those in which chromium strips supplant the old corrugated mirror strips. These have been found to be as efficient and much more durable than glass.

The modern tendency is to use the larger windows for ensemble pictures in which the products for sale in several departments are displayed together in their natural arrangement. In studying the problem of alteration as applied to old store fronts, the architect should bear this in mind and plot roughly the various possible arrangements of merchandise, indicating the secondary lighting, spot lights, etc., to emphasize the various points of interest in somewhat the same manner as is customary for stage lighting.

The background should also be carefully studied and developed in such a design and tone as to give the greatest value to the merchandise, not to the background itself.

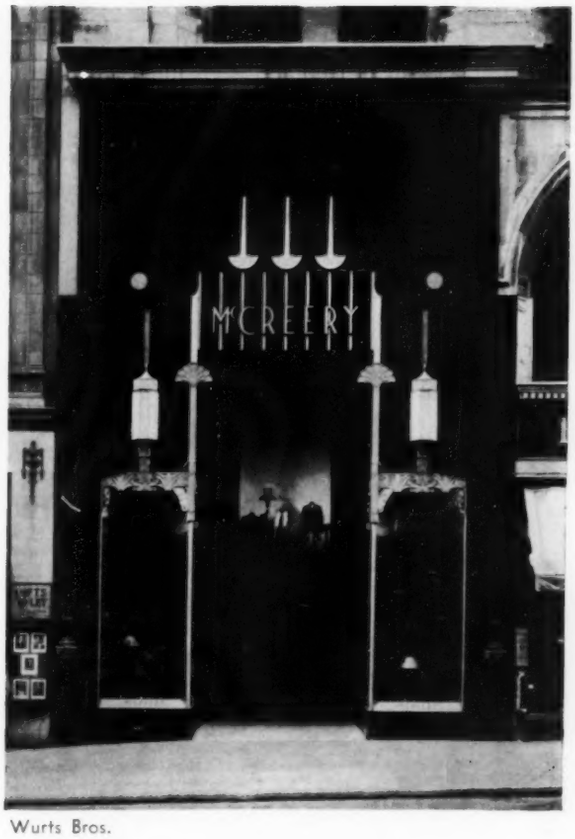
In the past, there has been a tendency to overcrowd both the show windows and show cases. One of the most important features of alteration work today is the elimination of this condition. Prospective buyers become so confused in looking over a large variety of merchandise that it is impossible for them to make a definite decision and they are only too likely to postpone their purchases until some future time. It is a good plan to show only the newer and more interesting models. Five or six pairs of shoes, for example, may be much more effectively displayed than two or three times that number and the individual articles can be shown much more attractively than when exposed in large numbers. It is the custom now to exhibit objects for evening wear with a constant night light effect. Spotlights from an elevated platform may also be used to advantage in featuring dresses and coats in order to bring out a special model from the rest of the goods displayed.

A CHECK-LIST OF SUGGESTED HOTEL MODERNIZATION PROCEDURE

By A. E. PRICE, Manager, Alteration Department, F. P. Platt and Brother, Architects

HOTEL DIVISION	ITEM	ITEM
Exterior	Modify out-of-date architectural features New entrance Resurface façade or clean or sand-blast façades	Install modern and attractive store fronts New marquee New awnings of better design and color
Entrance Vestibule	Change in size or shape New doors New floor	Redecorate and modernize walls and ceiling Modern lighting fixtures
Public Lobby and Corridors to Rentable Areas	New floor of modern material, design and color, or refinish existing or new floor covering Redecorate and modernize walls and ceiling	Modern type of illumination New furnishings and hangings
Office	Revise plan New fittings and equipment	Refinish floor, walls and ceiling
Elevator Lobby	Elevators: Increase number Relocate New cabs, control, motors, signal New doors	New floor of modern material, design and color or refinish existing or new floor covering, redecorate and modernize walls and ceiling Modern type of illumination
Lounge, Reception Room, Ladies' Room, Writing Room	New decorative treatment of floors, walls and ceilings	New furnishings and hangings Modern lighting fixtures
Main Dining Room, Coffee Shop, Banquet Room, Etc.	New floor of modern material, design and color, or refinish existing, or new floor covering Redecorate and modernize walls and ceiling Install modern system of illumination	Install modern ventilation and heating system New furnishings and hangings Replace obsolete furniture and equipment
Shops	Refinish floors, walls and ceilings	Modern lighting fixtures
Public Toilets	Install new modern fixtures New toilet partitions Modern, attractive sanitary floor and wall	Redecorate ceiling Install modern ventilation system
Guest Rooms, Guest Corridors and Elevator Landings	Refinish floors or new floor covering Redecorate walls and ceiling, wall paper, paint, etc., in lighter and gayer tones New-type entrance doors; mirror doors Modern hardware Install more base plugs and outlets Rearrange lighting for more convenience	Conceal radiators or change for modern type Modern furnishings Change heavy dark draperies to lighter, modern colors Provision for radio reception Replace screens and shades
Bathrooms	Increase number by plan rearrangement Install modern fixtures and accessories Replace floor and walls with modern tile in colors	Install shower compartments in addition to tubs Install built-in bathroom scales Provide proper heating for cold weather
Kitchens and Service	Re-plan divisions for added efficiency Refinish existing floors or install new or more modern materials Repaint walls and ceilings Replace obsolete equipment	Install modern conveying devices Rearrange lighting Install modern ventilation system Add shelving, storerooms, etc.
General	Added space by (1) added stories; (2) extensions Redivision of street frontage and floor area allotted to stores, etc. Possible increase of rentable store space by a careful study of levels, arcades, etc. Heating: New heating plant, new control, stoker Plumbing: New and additional lines, stacks, etc.—brass pipe Sprinkler system Circulating ice water Lighting: Increase capacity of wiring Electric roof sign Install laundry chute	Install mail chutes Soundproofing Replace obsolete refrigeration plant Replace obsolete laundry machinery Repair roofing, flashings, etc. Replace obsolete barber- and beauty-shop equipment New window, door and other trim Replace obsolete valet-shop equipment Install weatherstripping Provide garage facilities Replace windows with modern type or repair existing

Reprinted from HOTEL MANAGEMENT



Wurts Bros.

Shop Entrance Before and After Alteration

McCREERY AND COMPANY STORE, NEW YORK CITY
STARRETT AND VAN VLECK, ARCHITECTS

MODERNIZATION OF STORES

By F. GAERTNER; Starrett and Van Vleck, Architects

In approaching the problem of store modernization the architect may well emphasize those matters which will best awaken the merchant to a realization of what can be done to increase his business. Briefly, such fall under the following headings: transit facilities, air conditioning, sales handling, delivery handling, decoration, customers' convenience, new fixtures, better flooring and the modernization of show windows.

There are, of course, limitations as to how far one may go with all of these improvements. Not every old store can be adapted to thorough modernization without an almost complete reconstruction. In many instances stores have developed with the growth of the city and forced the merchant to take over one building after another regardless of the purposes for which they were originally designed. The result is that in many cases the buildings present serious fire hazards and are often of insufficient structural strength to sustain the necessary live loads.

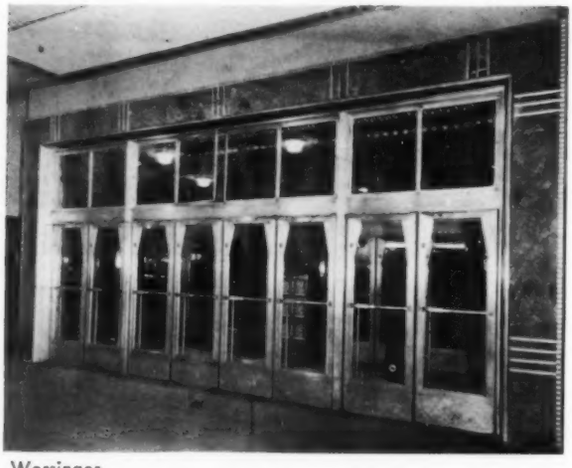
In the past, changes in style trends, methods of selling, merchandising and the like were to a great extent responsible for the changes made within stores. The same thing is, of course, true today except that the developments of the last twenty years have placed the average store on a more scientific basis so that other factors have come into the picture.

Business Must Go On During Remodeling

Most stores of an established character in a settled community cannot afford to give up the space they are now occupying in order to rebuild their premises. This would mean moving to another site outside the mercantile section, away from transportation facilities and from the trend of traffic. The result is that unless the store spaces are unusually large, the building must be modernized while the business goes on.

In the case of Abraham and Straus, each floor area was so large that it was possible, by condensing the departments in the building left standing, to take care of those that had to be removed from that portion of the structure which was to be rebuilt. Such procedure entails a program of more

Interior of Old Entrance



Worsinger

Interior of New Entrance

intensive selling in order that the same volume of business may be done in the reduced area during construction as would normally take place over the entire area. In most cases it must be expected that a building operation would involve a slight loss of business but proper planning can reduce this to a minimum.

Structural Changes Often Necessary

The alteration of a building for adaptation to store uses often involves major structural changes. This is true not only in the case of former office buildings but also where the structure must be adapted to a heavier type of merchandise. An illustration is the Frederick Loeser and Company's building in Brooklyn. Although the premises had been used for many years as a department store, analysis of the safe carrying capacity of the floors revealed that they were capable of supporting only 25 lbs. per sq. ft. In view of the fact that this firm, as well as the average department store, handles mechanical refrigerators, rugs, linoleums, pianos and other heavy stock, and that the various departments are constantly being shifted, it was considered necessary to redesign the floors for a minimum of 100 lb. per sq. ft. In this particular instance, the store was of wood-frame construction with cast-iron columns. The latter were reinforced with additional channel members, and superimposed steel beams were placed beneath the floor joists.

This operation was handled one bay at a time and so arranged that the customers never realized that the building was being practically rebuilt. The new members were all incased with composition building board, making the columns octagonal in shape. The surfaces were decorated with a material similar to Craftex. The ceilings were

Worsinger

Old First-Floor Sales Space

Peyser and Patzig

Remodeled Interior of First Floor

In this building the floors were given additional reinforcing to meet variable loads. The work was done one bay at a time, so that customers never realized that the building was being practically rebuilt.

FREDERICK LOESER AND COMPANY STORE, BROOKLYN

STARRETT AND VAN VLECK, ARCHITECTS

furred down to the underside of the new floor beams, thereby concealing all sprinkler pipes and exposed electric wiring.

Traffic Increased by Elevators and Escalators

In many old buildings elevators have been installed without due consideration to the trend of traffic, with the result that some are overburdened while others lie practically idle. Often 65 to 70 per cent of the patrons would remain on the ground floor, about 10 per cent would go to the basement and the remaining 25 per cent to the upper floors. Realizing that there was no good reason why the upper floors should not be as fully occupied as the lower, serious study was devoted to the various methods for grouping elevators so as to pick up individuals from the ground floor and transport them to the stories above. In each specific instance where a study was made, the trend of traffic was increased. The most recent analysis of this problem shows that a combination of "up" and "down" escalators and elevators properly arranged can increase the traffic to the upper floors by over 100 per cent and the traffic to the basement by over 300 per cent.

In Macy's department store, New York City, the density of population has been followed for years. In 1913 the density on the first floor was 80 sq. ft. per person; in 1921, 40 sq. ft., and in 1929, almost 15 sq. ft. per person. In the basement the population in 1913 was in the neighborhood of 50 sq. ft. per person; in 1921, 30 sq. ft., and in 1929, 10 sq. ft., indicating that the potential patronage was available provided the facilities were adequate to take care of it. This naturally implies expansion in some direction.

If the means of expansion are not available, either laterally or in height, a rearrangement must be made within the present floor area to provide for this increased traffic. This demands an improvement of transportation facilities, coupled with a rearrangement of departments and fixtures in order to increase the aisle space. Supplementing these changes, methods must be devised for maintaining the morale of the employees, for creating better working conditions and for providing an atmosphere in which the customer does not feel oppressed. These latter considerations have resulted in the installation of air-conditioning systems which require considerable remodeling to provide for the various raceways for ducts to carry the supply and discharge of air.

Service Facilities

As the success of a retail business depends very largely upon the service rendered to the customer, it naturally follows that the delivery of the merchandise should be given important consideration. This means the installation of gravity chutes and belt conveyors for the handling of merchandise. As stores today are carrying a smaller inventory than in previous years and depending upon a greater turnover, organization of the stock room is essential. Incoming merchandise often requires the installation of freight elevators and mechanical spiral conveyors to conserve space.

Worsinger

Since business must go on during remodeling, it is usually necessary, as in the case of this building, to rebuild in parts, condensing the various departments in the building left standing to take care of those which must be removed.

ABRAHAM AND STRAUS STORE, BROOKLYN
STARRETT AND VAN VLECK, ARCHITECTS

Another very important matter is provision for customers' conveniences, retiring rooms and dining facilities. Proper lighting conditions are also most essential; likewise the surfacing of floors so as to make them comfortable for walking.

Exterior Changes

Expenditures should be primarily devoted to those features which will have the greatest appeal to the customer. This principle often implies alterations of the exterior which, of course, influences the prospective customer's first impression. Show windows must often be redesigned, new backgrounds installed, new entrances constructed and other changes made to attract the buying public.

It is not necessary that exterior changes should extend the full height of the building, since the customer is only interested in what is normally seen when approaching the entrance. Therefore it is often suggested that alterations be carried only to the second-floor level. Above this point it is principally a question of good housekeeping. The remaining portions of the exterior may often be

improved sufficiently by merely a coat of paint or a thorough washing.

Provision for Future Additions

It is always good practice when designing new store buildings to provide sufficient strength in the structural frame to carry additional floors. This has been proven desirable by the experience of the foremost architectural firm engaged in this work, for whenever stores have been altered or new buildings have been erected, an increase in the store business has followed, resulting in lack of space. Quite recently the firm of LaSalle and Koch in Toledo added three floors to a building 120′ x 240′ which was built in 1916. This addition was supplemented by a remodeling of practically the entire elevator installation.

Costs

The cost of alteration work naturally depends very largely on the character of the old building as well as the extent of the new construction. The Loeser store illustrates a comparatively large enterprise in which slightly over a million dollars was spent in modernizing the fronts and the entire first floor interior and redecorating all the upper stories. In this instance some ventilation work was performed, the electric wiring was completely revamped and a new set of escalators erected. No new elevators were added and the nature of the alterations was such that the decoration was all done on beaver board.

From the viewpoint of rental expense the remodeling of a store today is generally more economical than the construction of a new building, largely because the latter carries a greater item of interest, depreciation, taxes and other fixed expenses. It is doubtful if any store can successfully operate where rentals are over $1.50 per sq. ft. of floor area.

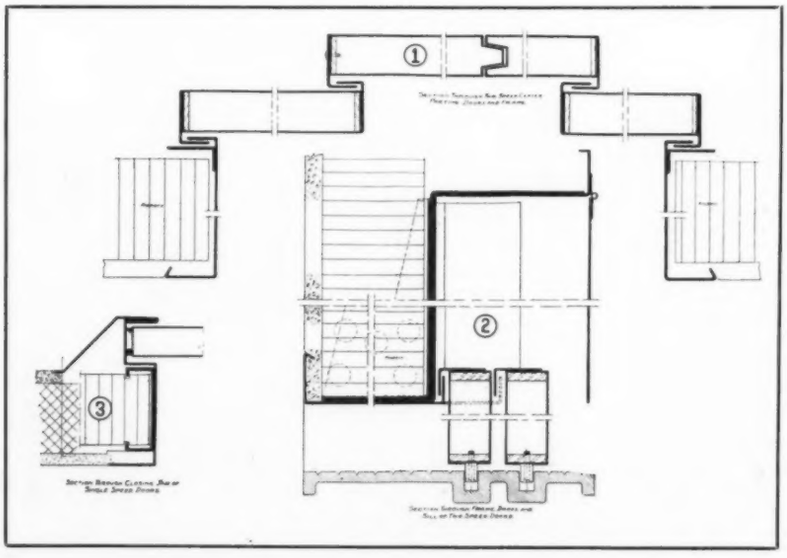
ELEVATOR DOORS FIRE TESTED

Underwriters' Laboratories are now testing, listing and labeling sliding hollow-metal elevator door assemblies of the one-, two- and three-speed types. Complete labeled assemblies for the most modern installations can now be had with the addition of a few minor changes from the ordinary to make them safe from the standpoint of fire protection.

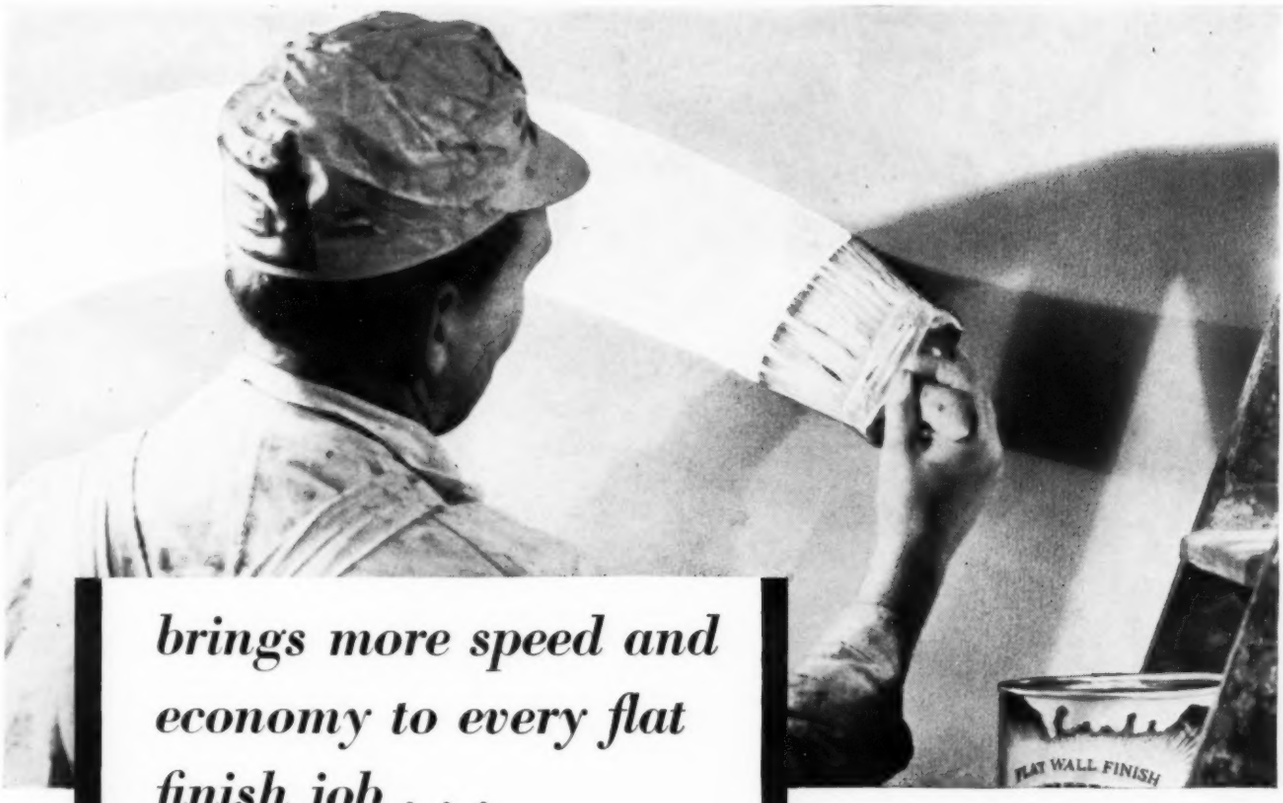
The doors are given the standard fire test in which the temperature reaches 1,700° F. at the end of one hour. They are then immediately withdrawn from the furnace and subjected to a stream of water on the exposed or heated side. The pressure at the hose nozzle is 30 pounds and the distance to the sample is 20 feet. The Laboratories' label is evidence that the assembly has creditably passed this drastic test. Separate labels are placed on the door assembly, including the frame, on the hangers and on the closer, as these three items are often made by different manufacturers.

In the figure, (1) shows a two-speed center-parting door assembly with the angle interlocks between door sections, door sections and frame, and joint at center. The vertical section through the head frame, doors and sill is shown at (2), while (3) gives a characteristic groove between closing jamb of single-speed, two-speed and three-speed doors. The inter-locking angles prevent the doors from separating when exposed to fire.

The inclosing walls of elevator shafts should be constructed as specified by the Building Code recommended by the National Board of Fire Underwriters. Center parting, chain-operated doors are provided with a center lock either on hangers or closers which keep the door closed in case of a failure of the chain. Reference to the List of Inspected Fire Protection Appliances issued by Underwriters' Laboratories shows that under the various listed manufacturers of hollow-metal doors certain ones are authorized to apply labels to sliding hollow-metal doors; also under the heading of Door and Shutter Accessories will be found lists of those manufacturers authorized to apply labels to hangers and closers applicable to these types of doors.



Its amazing "*slip*"



brings more speed and economy to every flat finish job . . .

A QUICK painting job, of course, saves money. But there's a limit to the speed which a painter can attain. That limit lies largely in the paint itself. How easy is it to apply?

Painters cannot help working faster . . . better . . . when they use the new Barreled Sunlight Flat Wall Finish. It has an ease of flow that can only be defined as an amazing "slip."

This "slip" speeds up the paint job without "hurry". . . frees the painter's brushes from the hindering drag of ordinary flat paints. Result: More rooms finished in a day with distinct savings in time and labor—by far your greatest painting expenses.

Then, too, there's a great saving in paint. Impartial tests prove the new Barreled Sunlight Flat Wall Finish has a spreading power of from *16% to 50% greater than that of any other high-quality flat finish.* You buy from 16% to 50% less paint! . . .

Surfaces painted with the new Barreled Sunlight Flat Wall Finish are distinctly handsome. It dries smooth, flawless, absolutely free from brush marks and laps. Its faint sheen, visible on close inspection, means a dirt- and dust-resistant surface that's easy to wash.

You can effect material initial and maintenance savings for your clients by specifying this new flat wall finish for the interiors of your projects. Write for further details.

U. S. Gutta Percha Paint Company, 22E Dudley Street, Providence, R. I. Branches or distributors in all principal cities. (For Pacific Coast, W. P. Fuller & Co.)

Easy to Tint — for any color scheme

Made in white — the new Barreled Sunlight Flat Wall Finish is easily tinted any shade with pure oil colors. Quantities of 5 gallons or more tinted without extra charge at the factory.

THE NEW

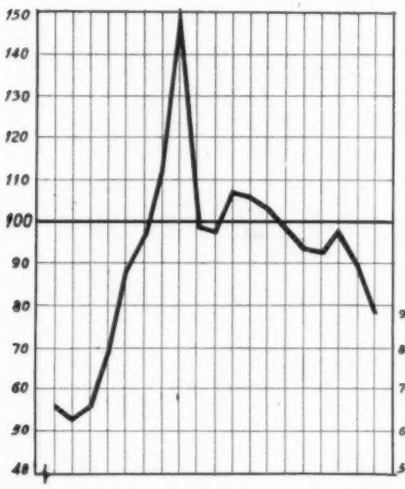
Barreled Sunlight

REG. U. S. PAT. OFF.

FLAT WALL FINISH

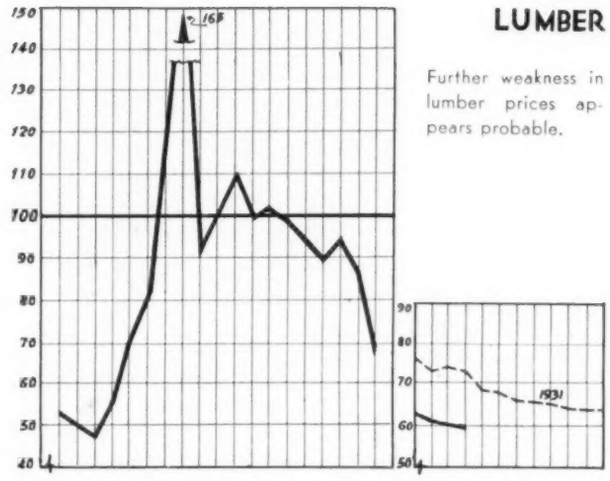
WHOLESALE PRICES FOR BUILDING MATERIALS

1926 Monthly Average — 100



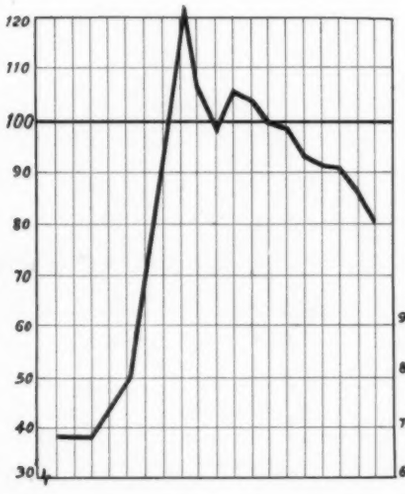
GENERAL INDEX

The decline in building material prices, as a group, has not yet been arrested.



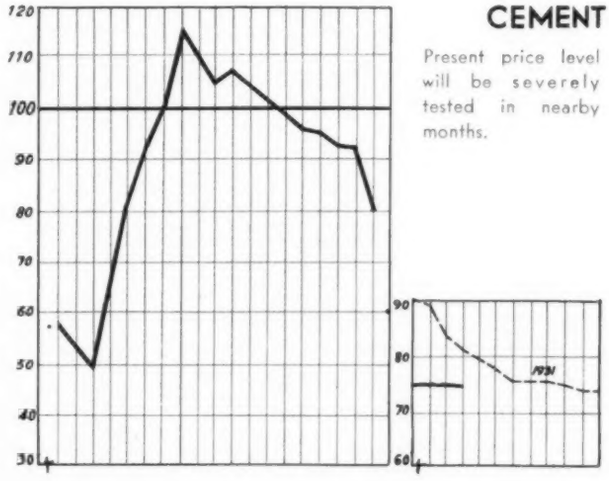
LUMBER

Further weakness in lumber prices appears probable.



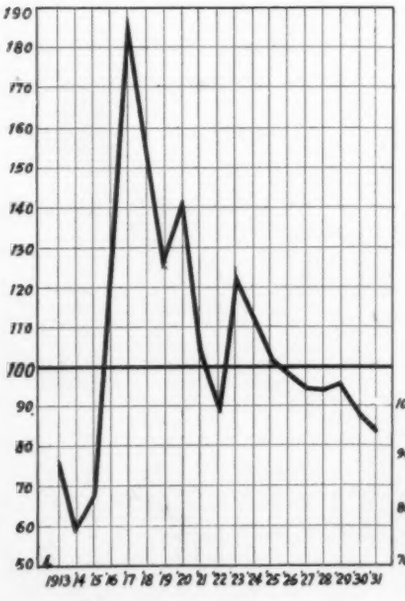
BRICK

Local building conditions will determine future course of brick prices. Stabilization at these levels is more apparent than real.



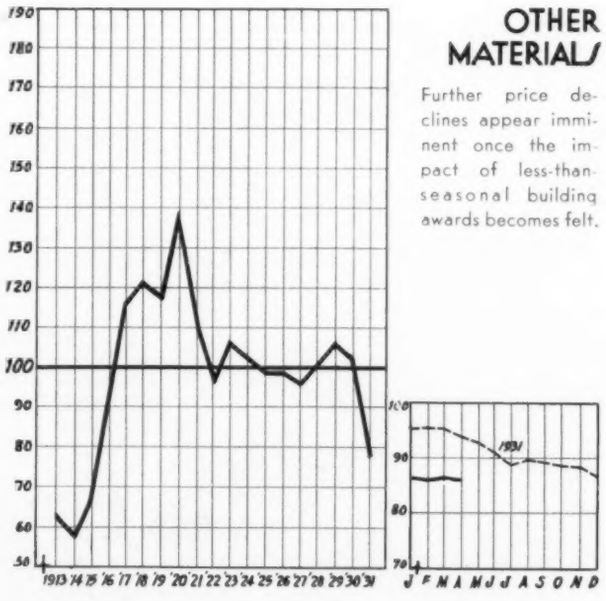
CEMENT

Present price level will be severely tested in nearby months.



STRUCTURAL STEEL

Apparent strength in price structure appears unwarranted on basis of current and nearby probable demand.



OTHER MATERIALS

Further price declines appear imminent once the impact of less-than-seasonal building awards becomes felt.

HERE is the big point

Black plate glass—with a *suspended abrasive* uniformly dispersed throughout the glass *while molten.* Not just a top surface treatment that wears smooth and slippery, but a blackboard that is perfect surface *all the way through from back to front.* Experimental tests equivalent to *one hundred years wear* have left *Seloc* glass blackboards as good as new.

A NEW COMPOSITION BLACKBOARD KNOWN AS "SELOC SLATE"

Composed of long length wood fibres, impregnated in oil, and formed under pressure of eight thousand lbs. to the square inch. Is waterproof, and will not warp or bulge. Guaranteed for ten years. Where price is a factor, here is best obtainable material.

No!

GLASS BLACKBOARDS ARE *NOT* NEW . . . . .

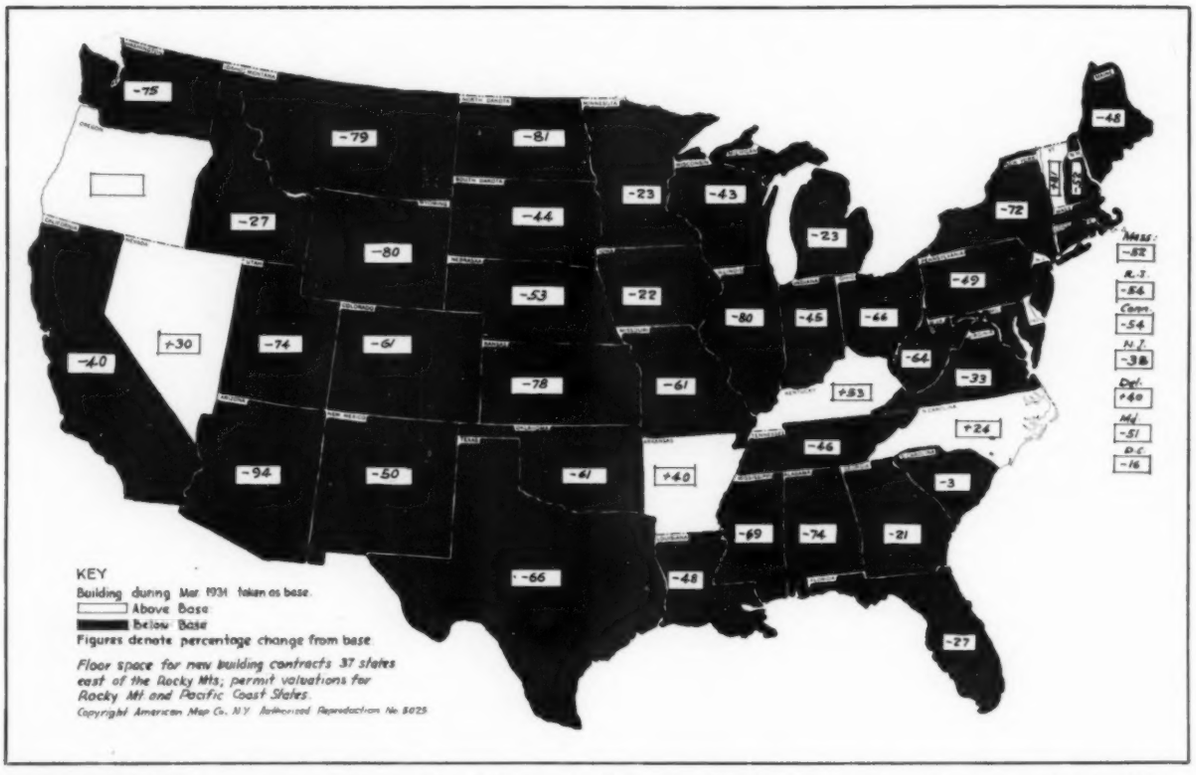
—but here is a NEW and VERY SUPERIOR kind of glass blackboard

SELOC Glass is the name of this new blackboard. It differs from any blackboard hitherto made because its composition is *uniform throughout.* Think what that means! A *Seloc* glass blackboard can never wear smooth or never wear out, for the suspended abrasive, uniformly dispersed throughout the black plate glass, provides a surface that can *never* change, *never* get "slick," *never* lose the velvety yet effective "tooth" that takes and holds the lightest touch of the chalk.

We need not explain the advantages of *black plate glass* itself as a substance for blackboards. Everyone knows it does not fade, does not deteriorate, is wearproof, is easily installed and comes in long lengths. When to black plate glass as a substance is added this new and most important feature of *uniform abrasive texture throughout,* you have a blackboard that science may never be able to improve. On your next job—investigate *Seloc* Glass—there has never been anything like it before.

NEW YORK SILICATE BOOK SLATE COMPANY

20 VESEY STREET · · · NEW YORK CITY



The March building map showed only five states east of the Rocky Mountains where floor-space totals of new building contracts were higher than in March, 1931: Vermont, Delaware, Kentucky, North Carolina, and Arkansas. In February the map showed seven states where awards were higher than in the corresponding month of last year, while the January map showed six states on a higher basis than a year earlier. Of the states to show gains in March over a year ago, Vermont and Delaware reported increases for the fourth consecutive month.

MODERNIZATION: ITS IMPORTANCE TO THE ARCHITECT

By L. SETH SCHNITMAN

So long as construction activity was on a level that assured more or less full employment, little attention was given to alterations as affecting the general welfare of the industry. Now that the 1932 volume of new construction of all descriptions promises to be less than 20 per cent of the peak total registered in 1928, interest in the whole question of alteration and modernization has shown a noticeable increase.

Since the beginning of 1930 much effort and considerable capital have been expended to promote modernization. This movement has naturally resolved itself into two distinct categories: (1) maintenance and (2) structural change.

Modernization is sound when it is largely a matter of maintenance; such maintenance might involve the installation of movable fixtures or equipment, more up-to-date elevators and fire doors or heating improvements. But modernization that entails large basic structural changes to an existing skeleton or shell is likely to be economically unsound. Alterations of this latter type connote a condition of advanced obsolescence. The most economic way to meet the ravages of this type of obsolescence is to destroy the causes—to wreck and build anew. In this manner one can more positively insure a fuller economic utilization of land.

Competition between new and old buildings forces continuous modernization. When the handicap is largely inherent in the structure itself, this competition can usually be met better by rebuilding than by altering. Quite naturally there are important exceptions to this general rule. Each contemplated alteration project involving major structural changes must necessarily be considered separately. Any major alteration which is designed to correct obsolescence and to improve or restore revenue will fail, however, if population and business shifts, rising or falling land values, traffic conditions, population densities, and sundry other social and economic factors are ignored.

Commercial buildings, principally offices and stores, and factory buildings have a faster rate of obsolescence than most other structural types, and

Important New Book . . . FREE

"Resilient Floors" is its title—the most complete book on this subject ever published for architects. It is a real encyclopaedia—120 pages of useful information—on modern linoleum floors.

One interesting feature of this book is its 61 actual photographs of resilient floor installations in all types of buildings—schools, hospitals, churches, residences, stores, offices, banks, etc.

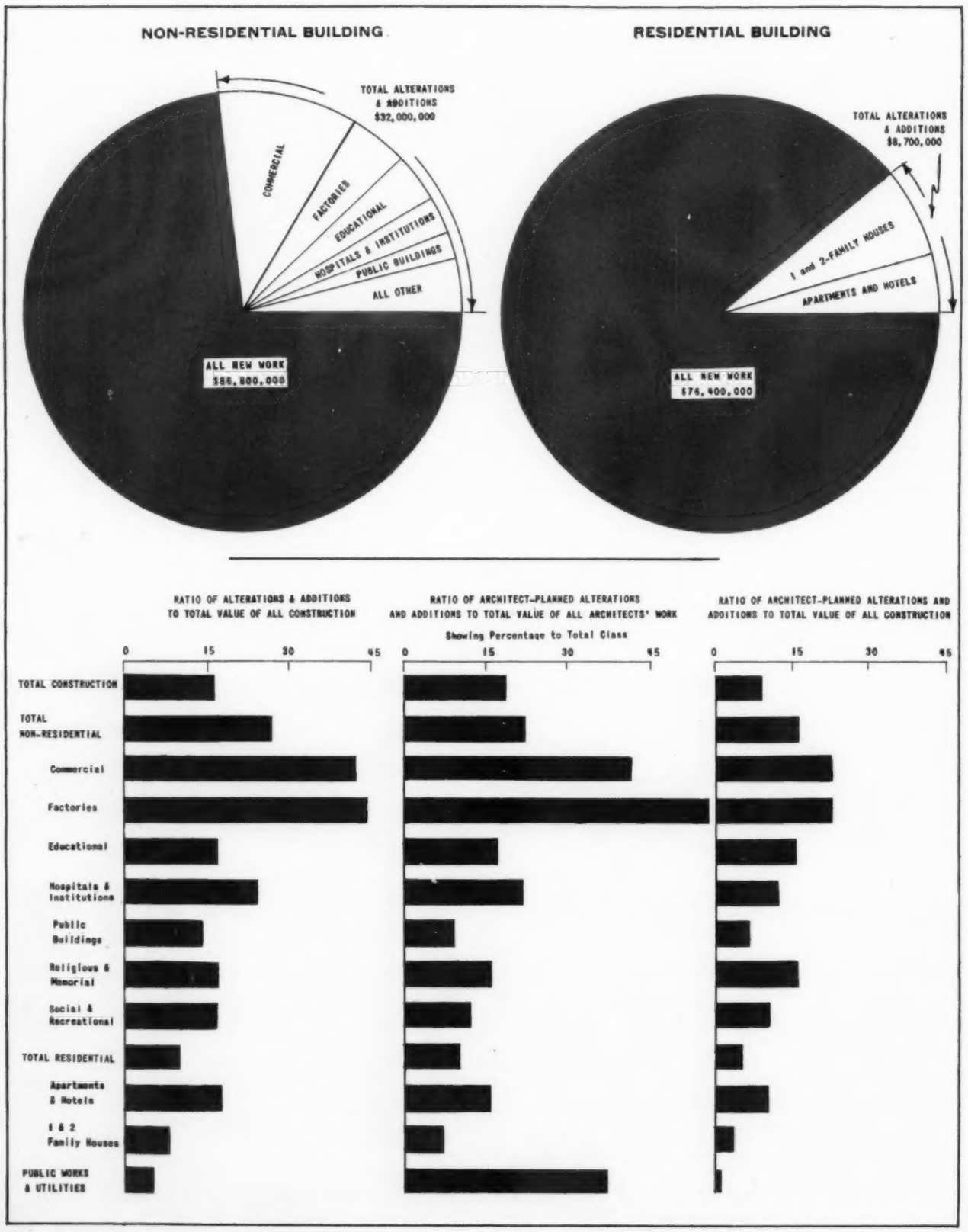
Of particular value are the ten technical sections of the book. One describes in full the requirements of the U. S. Government specification for linoleum, with illustrations of the tests. Others contain structural detail drawings, complete and abridged installation specifications, maintenance information, design reproductions in color, etc.

This book belongs in your files. Write our Architectural Service Department for your free copy. Also—ask about our Bonded Floors installation service, in which Sealex materials are backed by a Guaranty Bond.

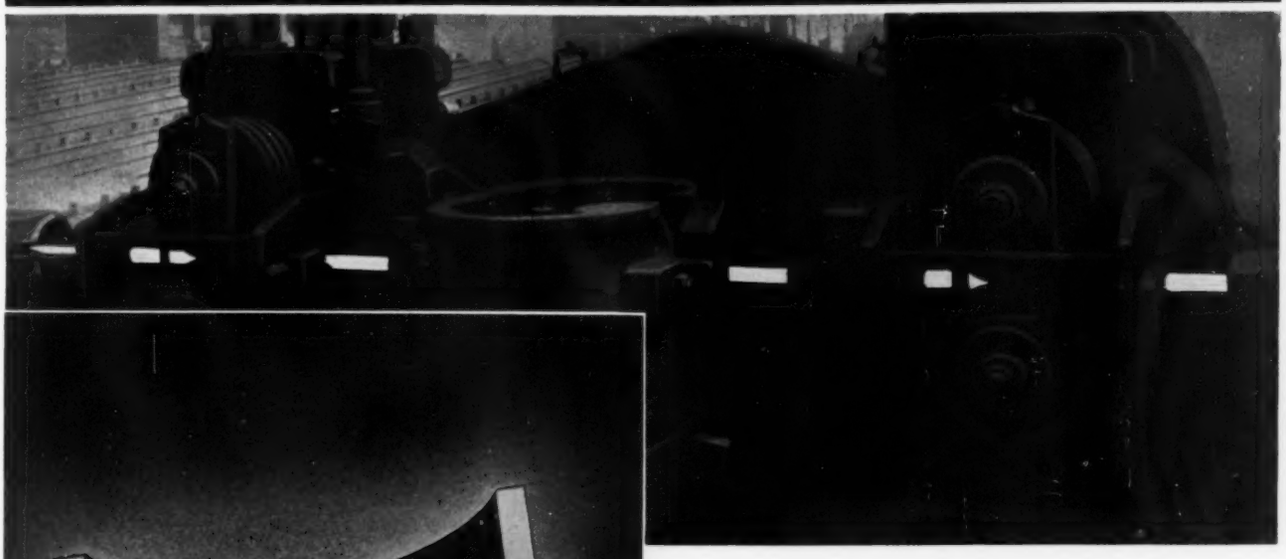
CONGOLEUM-NAIRN INC. . . . KEARNY, NEW JERSEY

SEALEX
REG. U.S. PAT. OFF.
LINOLEUM FLOORS

CONSTRUCTION CONTRACTS AWARDED IN 37 EASTERN STATES DURING FIRST QUARTER OF 1932, WITH PARTICULAR REFERENCE TO ALTERATIONS IN CONNECTION WITH EXISTING RESIDENTIAL AND NONRESIDENTIAL BUILDINGS



THE SCALE IS TAKEN OUT··



AND THE PIPE LEFT SMOOTH AND CLEAN

A uniformly dense, homogeneous structure, with a smooth, clean surface means a metal of greater resistance to corrosion. "That stands to reason", as the practical user would say. Service records bear out the reasoning. And science makes clear that the experience is not accidental.

The NATIONAL Scale Free Process (applied to butt-weld pipe, sizes ⅛ to 3-inch), plus Spellerizing, are two definite, specific mill operations that produce this homogeneous structure and smooth, clean surface. Therefore, NATIONAL Scale Free Pipe is highly resistant to initial attacks of corrosion and quite specially to pitting. The treatment by which mill-scale is removed and the pipe wall made smooth and clean gives the user a more durable piping system for various kinds of service. The clean interior takes a more adherent galvanizing coat, while the smooth exterior gives a more satisfactory appearance, especially where enamels, bronzing, plating, or other finishes are added, or for railings and grill work.

When you buy or specify this cleaner, better-looking pipe, you do more than give preference to a visible refinement. You provide for inherent practical advantages of considerable value.

The Scale Free Process is a patented method developed by National Tube Company and applied only to NATIONAL Pipe—

America's Standard Wrought Pipe

NATIONAL TUBE COMPANY · Pittsburgh, Pa.
Subsidiary of United States Steel Corporation

NATIONAL SCALE FREE PIPE

hence require more continuous modernization. The accompanying chart discloses, among other things, the importance of alteration work in respect to these specific classes of building. In the case of factory buildings which are usually planned for specific industrial uses large alterations may and often are necessary when such space is to be converted to other industrial uses than those for which the buildings were originally designed.

A check-up of the construction results of the first quarter of 1932 discloses that of the 16,513 construction contracts for which awards were let throughout the 37 states east of the Rockies, 527 or approximately 30 per cent were for alterations and additions to existing structures of all descriptions.

On a valuation basis, alterations and additions during the quarter accounted for only 16 per cent of the total value of all construction awards; while on a floor-space basis somewhat less than 8 per cent of the new floor space involved in all contracts was for additions. A detailed examination of the first quarter's contract record shows that nonresidential building benefitted most from alterations and additions whether measured from the standpoint of number of projects, floor space or contract values.

On a project basis alterations and additions accounted for almost 56 per cent of the total number of construction contracts let for nonresidential building as a whole during the period; on a floor-space basis the ratio was 13 per cent, while on contract values the relationship between alterations and additions and total nonresidential awards was 27 per cent.

Alterations and additions accounted for 20 per cent of the total number of residential construction contracts awarded during the first quarter; the floor space involved in additions represented only about 2 per cent of the total floor space of all residential contracts; while the value of contracts for residential alterations and additions represented slightly more than 10 per cent of the total value of residential awards during the quarter. The relationships between new and alteration projects would be higher if consideration were given to the fact that only alteration projects valued at $1500 or more have been counted.

For public works and utilities combined, alterations and additions were slightly less than 10 per cent of the total number of contracts for these structural types; floor space added accounted for approximately 12 per cent of the total new floor space involved; and the value of awards for additions and alterations in connection with existing public works and utilities represented 5.6 per cent of the total value of all contracts for public works and utilities.

Conditions quite naturally vary over the country. Thus, for all classes of construction the first quarter contract record discloses that in the Southeast almost 25 per cent of the value of all construction awards was for alterations and additions. In the Central West alterations and additions accounted for only 9 per cent of the total value of all construction awards. The results of the remaining eleven geographic areas into which the entire territory east of the Rockies has been divided range between these two extremes.

For nonresidential building alone the St. Louis district showed 41 per cent of the value of all nonresidential building awards during the first quarter to have been for alterations and additions while in Texas only 11 per cent of nonresidential work was for alterations and additions.

Southern Michigan showed almost 16 per cent of the value of all residential awards to have been for alterations and additions while in the Central West this ratio was only 7.

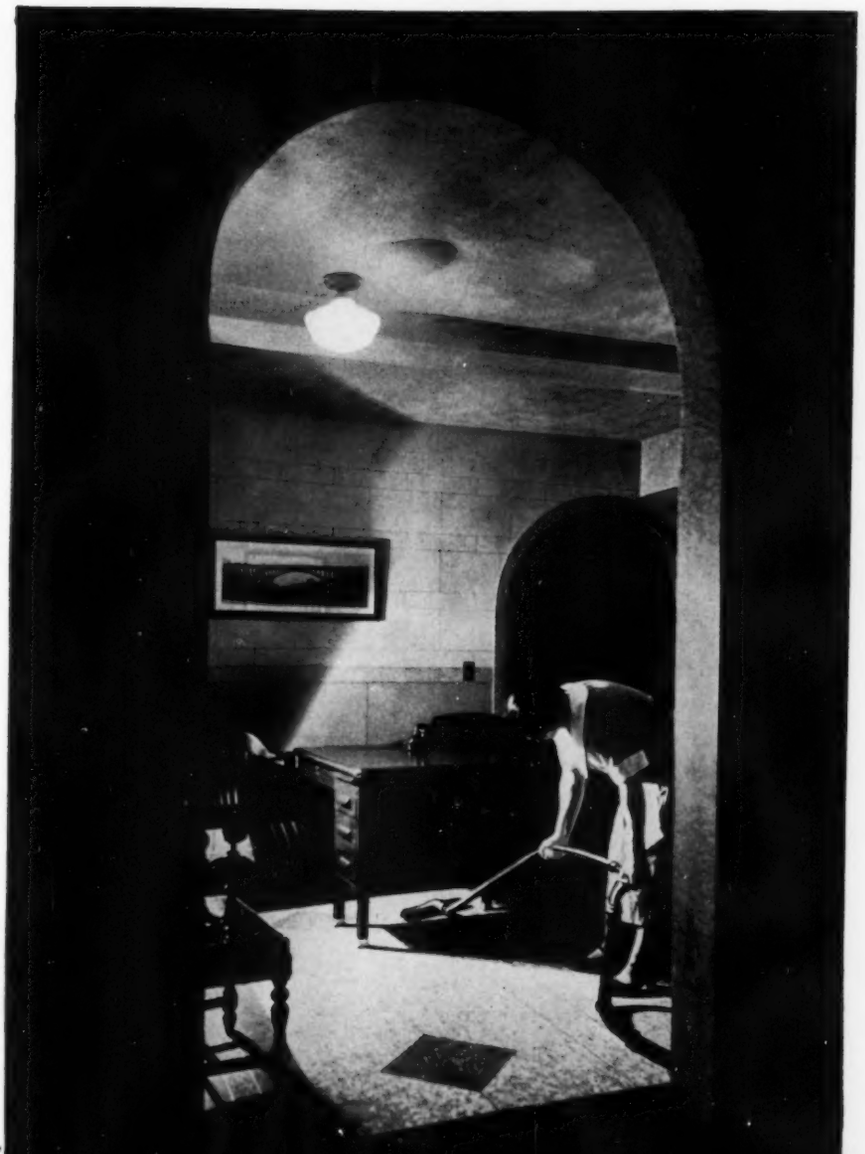
Of the value of all contracts awarded for commercial structures throughout the 37 Eastern States during the first quarter of 1932, 43 per cent was for alterations and additions. Factory alterations and additions accounted for 44 per cent of all contracts for this structural type. Hospitals and institutions showed 25 per cent for alterations and additions; educational, religious and memorial, social and recreational buildings each accounted for 17 per cent of their respective total contract values during the first quarter. Alterations to public buildings represented 14 per cent of the value of all contracts for public buildings.

In the case of apartments and hotels, alterations and additions represented about 18 per cent of the total awards while in the case of 1- and 2-family houses the ratio was less than 8 but this would be larger if consideration were given to alterations below the value of $1500, which have not been counted.

No strictly comparable figures on the importance of alterations and additions are available prior to 1932, but since the ratio indicated by the building permit figures of the U. S. Department of Labor covering the first quarter of the year approximates that shown in the contract records, there is the suggestion that annual percentages on alterations and additions indicated by the permit records for the years beginning with 1928 can be used for an historical background. Thus in 1928 only 9.5 per cent of the value of all new buildings, as apart from engineering, was for alterations and additions; in 1929 this percentage advanced to 12.1; in 1930 it stood at 14.7; in 1931 it reached 15.3 per cent. For the first quarter of 1932 the permit record showed 21 per cent as against 20 per cent for the contract record.

The continuous rise in this ratio does not reflect an absolute gain in the value of alterations and additions; as a matter of fact each succeeding period has shown an actual decline but the rate of decline in the value of alterations and additions has been less steep than the rate of loss in total work. Specifically, the loss in alterations between 1928 and 1931 was 38 per cent but the decline in total work was 62 per cent, as based upon building permits.

AT ONE A.M.



What happens in your office? What kind of a night "gang" comes in? How much of the dirt and dust goes out? How much does it cost?

The powerful vacuum of the Spencer Central Cleaning System has answered all of these questions satisfactorily in most of the newest, biggest and best buildings in the country. Before you build again, investigate first hand. A list of Spencer installations will be furnished on request.

THE SPENCER TURBINE CO., HARTFORD, CONN.

They Chose

ROME CONVECTORS

Rome Convectors were selected for installation in the following buildings:

Kresge Administration Building, Detroit
Folger Shakespearean Library, Washington
Federal Reserve Bank, Pittsburg
Bahai Temple, Wilmette, Ill.
Atwater Kent residence, Philadelphia
Frank Goodyear residence, Aurora, N.Y.

This very abbreviated list indicates the high type of building for which architects are selecting Rome Convectors. The reason for this preference is: Rome Convectors are

BUILT UP TO A STANDARD NOT DOWN TO A PRICE

Rome throws the whole weight of its resources and manufacturing facilities into quality. Not only has Rome consistently refused to sacrifice quality for price . . . but is actually raising the quality of its Convectors to an even higher standard.

Standard Types and Sizes of Rome Convectors

Rome has standardized its ROCOP Convectors as to types, sizes (of which there are 21) and methods of installation. This standardization simplifies estimating and installation, eliminates errors and delays, and is sufficiently flexible to meet everyday requirements.

ROBRAS Convectors are available in a wider variety of types and sizes, including those for out-of-the-ordinary requirements. Rome Convectors are assurance of quality. They also effect economy . . . a direct result of standardization. For further information send for ROCOP and ROBRAS Bulletins.

Rome

Radiation Company

DIVISION OF

Revere Copper *and* Brass Incorporated

ROME, N. Y.

It is of interest to examine the part which the architect plays in alterations and additions. During the first quarter of 1932 architects designed $123,000,000 worth of construction in the 37 Eastern States as based upon contract records. Of this amount almost 19 per cent was for alterations and additions. Of all architect-planned commercial projects undertaken during the period 42 per cent of the value was in alterations and additions; 56 per cent of the value of all architect-planned factory projects involved alterations; while architect-planned alterations to hospitals represented 21 per cent of all architect work on this type of building. In the case of apartments and hotels 16 per cent of all architect-planned work was for alterations while for 1- and 2-family houses this ratio was 7.5.

Bringing these facts together one finds that out of a nonresidential building contract total for the 37 eastern states during the initial quarter of 1932 amounting to $119,000,000, $18,000,000 or about 15 per cent represented architect-planned alterations and additions. Out of a total of about $85,000,000 for residential building awards $4,000,000 or about 5 per cent represented architect-planned alterations and additions. For building as a whole exclusive of engineering, the total contract volume of the first quarter was $204,000,000; of this amount $22,000,000 or almost 11 per cent was architect-planned alterations and additions.

With real estate conditions still perturbed and with foreclosures continuing in heavy volume, especially in office buildings and apartments, architects may expect to find need for their services in the planning of alterations and additions. Competition for tenants and a revaluation of rental properties through the processes of deflation will force sizable changes in many of our less up-to-date structures. The planning of these changes must be considered in respect to the important social and economic factors involved.

"DUSTOP"—AIR FILTER

The Owens-Illinois Glass Company, Toledo, announces a new product—an air filter of glass wool. This product will bear the trade name of "Dustop."

The container is of paper, which adds to the lightness of the unit and renders it readily disposable. Weighing only two pounds, it will absorb dust in excess of its own weight. The "flexibility" of the paper container establishes a tight seal between the filter and the metal frame into which it fits, thus preventing the passage of any unfiltered air around the unit. It has been designed 2 inches in thickness, so that when a standard 4 inch pack is established by using two units in tandem, or two units placed face to face, it is only necessary to change one-half the thickness of the total pack at one time.

H&H Presents

AMY, ACEVES & KING INC.
New York

MULTICOUPLER ANTENNA

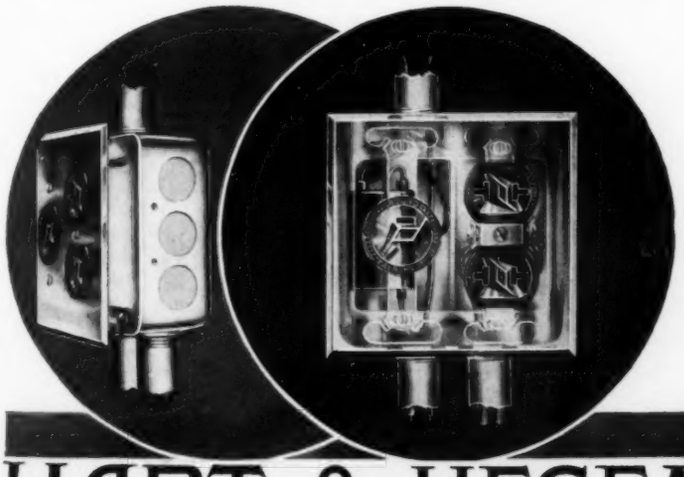
System of RADIO WAVE DISTRIBUTION

1 Aerial for plurality of radio sets

in Apartments and Institutions

THIS permanently wired-in antenna system provides for as many as 25 radio sets served by one aerial. It brings each tenant complete "freedom of the air" in getting any broadcast desired, regardless of what other programs may be on in other apartments at the same time. Reception is as good *or better* than in sets individually served by separate antennae! MULTICOUPLER assures tenant-satisfaction with the conditions of radio reception provided by the landlord, and figures as a timely RENTAL FEATURE.

Here is the Architect's opportunity to smooth out the radio problem of the building owner. To improve relations with tenants. To prevent defacing of property by unsightly poles and wires strung haphazard. To save damage to roofing. To remove a fire hazard . . . By installing MULTICOUPLER Antenna System the owner saves trouble for himself and *adds* an attraction of instant appeal to renters. Already more than 9,000 installed. *Write for* descriptive folder and complete instruction-sheet easily followed by the Electrical Contractor.



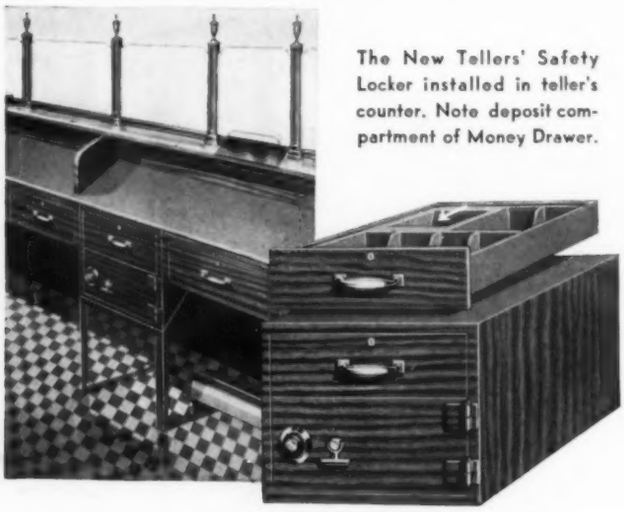
At left: Phantom view of No. 3060 Multicoupler Unit complete, and side view. User plugs into Aerial, Ground, Power same as he'd plug in a lamp or appliance in an ordinary Convenience Outlet. *At right:* the Multicoupler. « « « «

HART & HEGEMAN DIVISION

THE ARROW-HART & HEGEMAN ELECTRIC CO. HARTFORD, CONN.

SAFETY

for Money from Hold-up and Mysterious Disappearance . .



The New Tellers' Safety Locker installed in teller's counter. Note deposit compartment of Money Drawer.

The compact unit ready for installation is shown above.

The *New* DIEBOLD Tellers' Safety Locker

THE TELLERS' SAFETY LOCKER makes possible a method of handling money that provides positive protection from loss through hold-up and mysterious disappearance. » » It provides tellers with proper physical protection for their money during the day. Because the teller alone controls the locks of both money drawer and locker, it establishes undivided responsibility for the money in his care. » » The Diebold Tellers' Safety Locker, equipped with either electric supervision or delayed control time-combination-lock supervision, provides hold-up protection. It tends to prevent hold-up attack as well as protect surplus funds from the bandits. » » The money drawer has a special compartment from which excess money is automatically and secretly deposited in the safety locker whenever the drawer is closed. » » *Delayed control* over the locking mechanism of both money drawer and locker or locker alone places surplus sums, in excess of ordinary requirements, beyond the reach of hold-up bandits. » » Ask for descriptive literature and specifications for incorporating this unit in fixture plans. » » See our catalogue in Sweets.

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The following bibliography on air conditioning for residences is recommended by the American Society of Heating and Ventilating Engineers:

Air Conditioning and Summer Heat (Gas Age Record, August 29, 1931, page 303).

Air Conditioning Engineer Builds a Home, An, by Esten Bolling (Heating, Piping and Air Conditioning, June, 1930).

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Cooling Our Homes, by J. E. Bullard (Aerologist, June, 1931).

Desk Fans in Winter, by J. H. D. Blanke (Aerologist, November, 1930).

Domestic Ventilating Fans, by E. V. Hill (Aerologist, August, 1929).

Effects of Too Dry Air, by Marvin C. Barnum (Heating and Ventilating, June, 1930, page 82).

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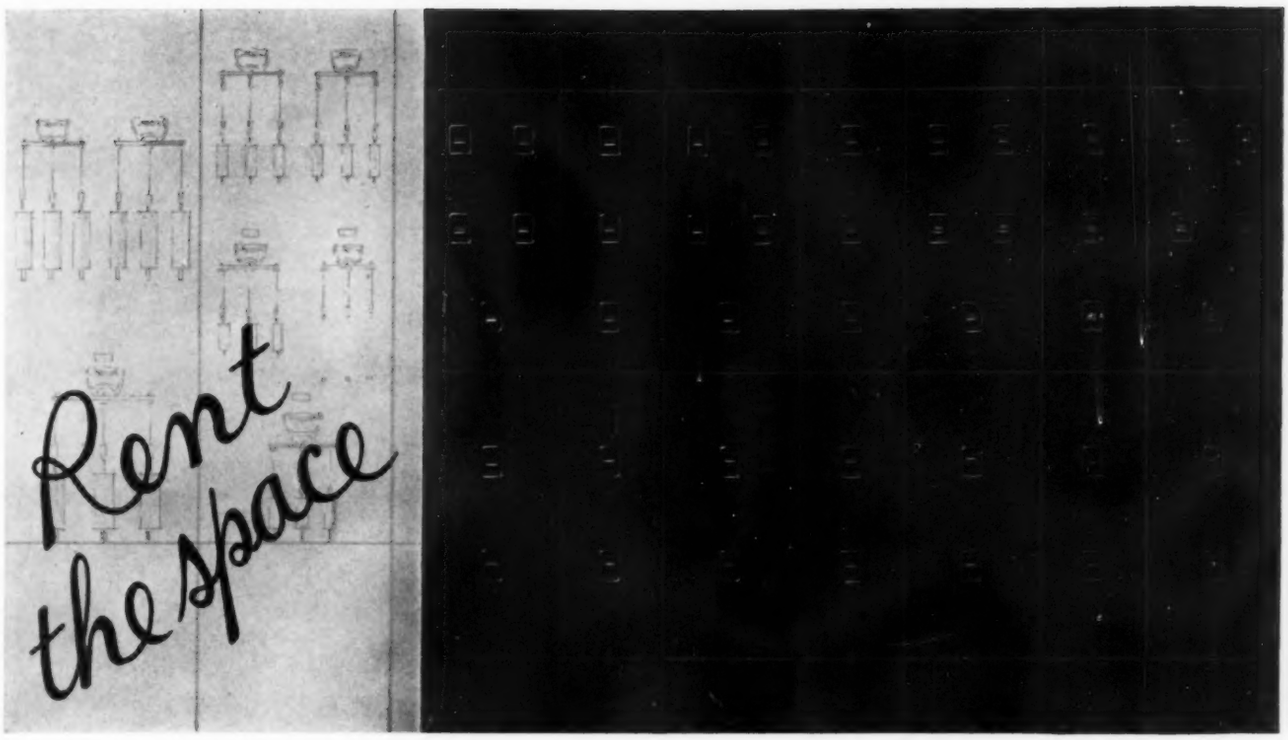

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Gas Vapor Mixtures for Heating Purposes (Gas Age Record, September 19, 1931, page 407).

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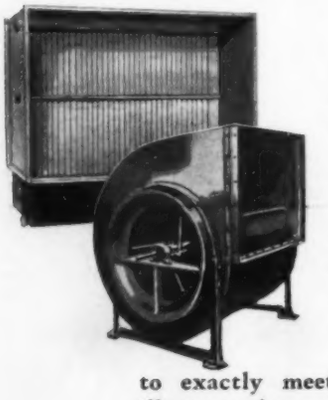

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